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Editor, Howard Myers; Managing Editor, Ruth Goodhue; Associates, George Nelson, Paul Grotz, Madelaine Kroll Thatcher, Henry N. Wright, John Beinert, Barbara Hunt, Nadia Williams, Joseph C. Hazen, Jr., Walter Sanders, Anna De Cormis.

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VOLUME 69—NUMBER TWO

THE MONTH IN BUILDING

VOLUME

PERMITS (May)		CONTRACTS (June)	
Residential	\$120,466,345	Residential	\$251,006,000
Non-residential	63,663,231	Non-residential	85,682,000
Additions, repairs	29,916,943	Heavy engineering	81,803,000
April, 1938	26,886,171	May, 1938	83,521,000
May, 1937	136,241,519	June, 1937	283,156,000
	147,814,756		318,137,000

Source: U. S. Dept. of Labor

Source: F. W. Dodge Corp.

Led by a 33 per cent drop in the non-residential classification, volume of building permits issued during May eased to \$120,466,345, about \$16 million or 12 per cent below the figure for April. Also depressing the total was the 12 per cent decrease in permits for additions and repairs. Sole buoying effect: 5 per cent increase in the residential division. Year to year decrease in the total was \$16 million, or 19 per cent.

While according to June statistics the aggregate volume of contracts also eased, contra-seasonal increases were registered by its residential and non-residential components. Thus, the former rose 3 per cent to the largest figure yet recorded for 1938; the latter advanced 5 per cent. Both, however, were slightly behind June 1937 figures. Construction of public works and public utilities, grouped as heavy engineering, was 32 per cent behind the May volume, forced the grand total down to \$251,006,000—11 per cent below the May figure, 21 per cent below that for June of last year.

PEOPLE. In the increasing volume of books which roll each month from U. S. Government printing presses, Building can find much interesting reading. Government's book-of-the-month for July, entitled "The Problems of a Changing Population," was written by the National Resources Committee, chaired by Interior Secretary Harold L. Ickes.

Restating many obvious truths in a learned manner and offering several not-so-obvious facts, the Committee reports that U. S. population will grow at a continually decreasing rate for 50 years, that by 1980 the total will reach 158,000,000. Basis for this prediction is the assumption of medium fertility and mortality rates and a net immigration of 100,000 persons per year after 1940. Assuming minimum conditions, the population peak will be 138,000,000 in 1955 with a 10,000,000 decrease in the following 25 years.

Possible foundation for a home-building boom is the fact that the number of young persons of marriageable age will be greatest about seven years hence—20 years after 1925's record births. Minimizing this possibility, however, is the Committee's finding that population changes were not responsible for the slump in building in 1925. Supporting evidence: a chart showing the downward trend of marriages during Depression I did not start until 1929 when residential construction had been on the slide for four years.

Other opinions of the Committee: "... growth of cities will be much slower and more uncertain than in the past. ... The population ... appears to be ap-

proaching stabilization both in number and geographic distribution. ... The transition from an increasing to a stationary or decreasing population may on the whole be beneficial to the life of the Nation. ... It is advisable that the Federal census be established on a five-year basis ... be supplemented by sampling studies in selected areas. ..."

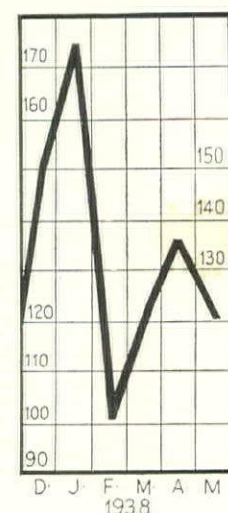
FHA'S MORTGAGOR. As the Federal Housing Administration moved into its fifth year of operation last month, it posted newsworthy statistics as proof that it is fulfilling a prime purpose—that of using the insured mortgage to put home ownership within easy grasp of low-income families. Thus, about half the families that purchased FHA-insured homes in 1937 earned less than \$2,500 per year, spent \$30 or less each month on mortgage payments, yet used less than one-sixth of their monthly income for such charges.

Breakdown of FHA mortgagors into annual income classifications presents an interesting tabulation:

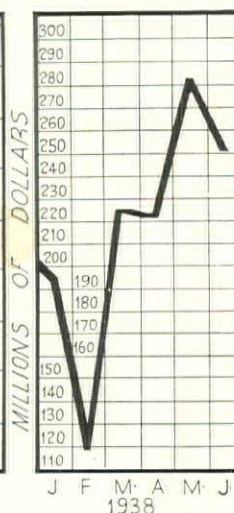
25.5 per cent	earned \$3,500 or more
12.4 per cent	earned \$3,000—\$3,499
13.1 per cent	earned \$2,500—\$2,999
25.2 per cent	earned \$2,000—\$2,449
18.6 per cent	earned \$1,500—\$1,999
5.0 per cent	earned \$1,000—\$1,499
0.2 per cent	earned less than \$1,000

While this tabulation proves a point for the FHA, it also proves a point for the critics of the Government's mortgage in-

PERMITS



CONTRACTS



surance program. Mortgagors earning less than \$2,500 per year have small jobs and small savings, will be among the first to default when depression comes again.

NAREB TO NAR. Holding the word "realtor" to be a trade name and the exclusive property of the National Association of Real Estate Boards, the Los Angeles Realty Board month ago petitioned the parent association for a rechristening. Its desired moniker: Los Angeles Board of Realtors. While the West Coast name-changers await action on their petition at NAREB's Milwaukee convention to be held November 7-12, they send out feelers, predict a wholesale renaming of real estate boards throughout the country.

And, Dame Rumor has it that officials of the national body are considering a little name-changing themselves: the National Association of Real Estate Boards may become the National Association of Realtors and time-worn "NAREB" may shrink to an abbreviated "NAR."

REALTY POLLED. Less active than a year ago but on an equal or higher price level was nut-shell description of the U. S. realty market offered last month by the National Association of Real Estate Boards.

In its 31st semi-annual survey, NAREB covered 278 cities coast to coast, sampled conditions prevalent in May and June, then compared them with those of the corresponding months of last year. (It is to be noted that May and June, 1937,

THE VOICE OF AUTHORITY

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February 14, 1938

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By *David Fettes*
D. Fettes

DF .mv

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THE MONTH IN BUILDING

represented the high point of the Recovery upswing.)

While 74 per cent of all reporting cities suffered from decreased market activity, 64 per cent indicated that sales prices were as high or higher than a year ago. The breakdown: 8 per cent voted "up"; 56 per cent, "unchanged." Average increase in prices was estimated to be 10 per cent. On the other hand, the remaining 36 per cent of the cities reported a price level about 10 per cent below that of last year.

Another significant result of the survey was its measurement of realty supply and demand. In 41 per cent of the cities an under-supply of single-family houses was noted, while six months ago 52 per cent of the cities so reported. A normal balance of apartment space was shown in 60 per cent of the cities, but a shortage existed in 29 per cent of them. Apartment shortage in the last sampling was 40 per cent. That Recession halved the lack of business buildings is indicated by the fact that only 8 per cent of the cities were conscious of such a shortage, as compared with 15 per cent six months ago.

Also weighed was mortgage money supply and demand. In the process, capital was found to be seeking investment in 68 per cent of the cities. In only 11 per cent did loans outweigh capital. From this part of NAREB's survey, it would appear that Capital, oil can in hand, is standing beside the machinery for a business and building boom.

FACT FACTORY. Two wide paths lead the way to successful low-cost housing: Government subsidy and technical improvement of Building's materials and methods. Month ago President Dr. Karl Taylor Compton announced that his Massachusetts Institute of Technology had set foot on the second path with establishment of the Albert Farwell Bemis Foundation. Named for the late housing student and expert who contributed "The Evolving House" to Building's library, the Foundation was created by a grant from the Bemis estate, currently administered by Sons Farwell, Alan and Judson.

Officially, M.I.T.'s new Foundation purposes "the search for and dissemination of knowledge pertaining to adequate, economical and abundant housing." Less official but clearly apparent is the fact that in pursuing its housing research, M.I.T. will drop many a factual pearl to the building industry in general.

Selected director of the Foundation is Architect John E. Burchard, one-time executive of the Housing Corp., now vice president of Bemis Industries, Inc. After training at the University of Minnesota

and M.I.T. (degree of master of science in architectural engineering), Burchard delved into housing, prefabrication, and building material research, collaborated with Author Bemis in writing "The Evolving House." He will assume the directorship next month.

Working with him will be an advisory



Fact-finder John E. Burchard

committee of prominent architects and builders (as yet undisclosed), three M.I.T. departments whose work closely approaches that of the Foundation and, indirectly, Government agencies, private corporations and individual construction authorities. Together they should hold Building's attention with their findings on several noteworthy subjects already scheduled for research:

☛ Evaluation of present house plans, particularly in relation to modern equipment and modern living.

☛ Behavior of existing houses and determination of a means by which purchasers may gauge the future behavior of new houses.

☛ Building materials and their transportation and distribution.

☛ Effect of mass production on the building industry.

☛ Analysis of the costs of existing houses in terms from which conclusions may be drawn. Also, studies of building costs in terms of maintenance.

☛ Land development studies.

For the public and for Building in particular, M.I.T.'s new fact factory contemplates publication of all its findings, promises to answer many a prayer.

PWA's PORTENT. Started five years ago, cut short a year ago and revived a month ago, the Public Works Administration is again a mighty big frog in Building's pond. Hopping into action it has already made allotments on projects for which unheeded applications were submitted in 1936. These projects and new ones already planned and to be planned will result in the release of close to \$5 billion of public funds, equal to the amount released during the four-year life of PWA No. 1.

So that Building might have a preview of where this money will probably go, PWA Administrator Harold Ickes requested the Bureau of Labor Statistics to study the experiences of PWA No. 1, predict the destination of each dollar to be spent through PWA No. 2. So, a case history analysis was made of more than 1,000 of the 25,000 projects now completed and in use, and a study undertaken of about a million actual payrolls, time sheets, contracts, material orders and other documents.

Net result of the research and answer to Administrator Ickes' request was the forecast that the \$965 million authorized for PWA loans and grants will release contract awards of \$1,867 million, of which \$1,667 million will result from non-Federal projects. But the Bureau of Labor Statistics went into greater detail, offered the following combined estimates (in millions) for Federal and non-Federal programs:

Contract awards	\$1,867
Material orders	1,001
Site payrolls	516
Man-hours of site employment....	611
Man-hours of indirect employment.	1,503

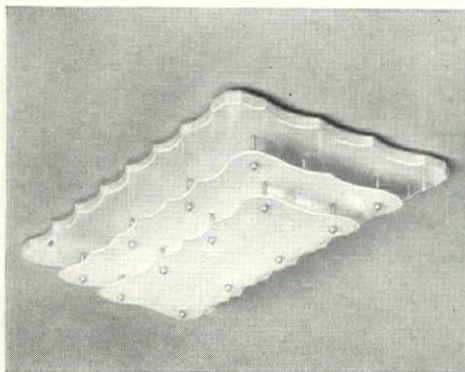
Since the biggest wedge of PWA's pie goes to manufacturers of building materials, the Bureau of Labor Statistics offered a breakdown of the \$1,001 million material item (in millions of dollars):

Iron and steel products	\$282
Lumber and millwork	76
Cement	71
Brick and tile	45
Heating materials	34
Plumbing materials	29
Other Materials	464

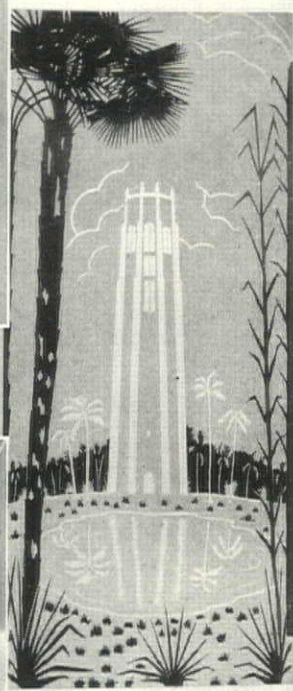
Experience indicates that half to three-quarters of these dollars will go toward the construction of actual building projects, as opposed to water systems, sewage systems, aqueducts, and other types of heavy engineering projects. For examples of what PWA No. 2 will build, see p. 10.

FORMICA WAS USED

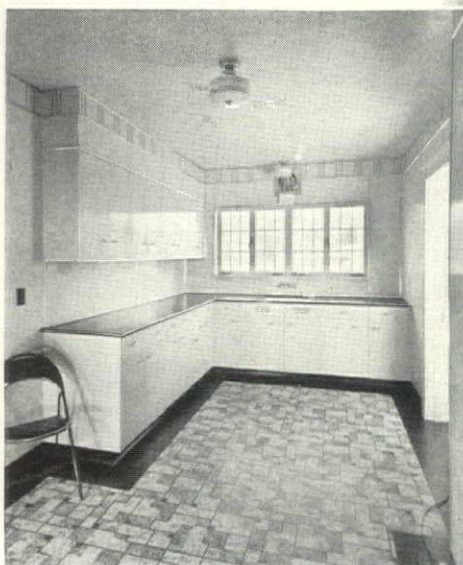
in Many ways
in this Residence



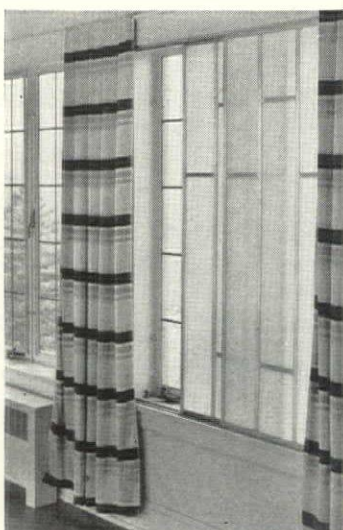
Formica Lighting Fixture made with translucent material.



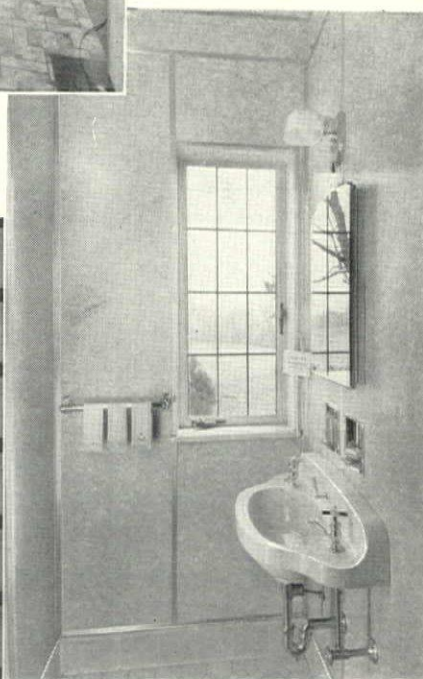
Formica plaque in color and metal at entrance.



Formica Kitchen Cabinet tops and wainscoting.



Double window made with white translucent Formica.



Formica covered walls in a bathroom.

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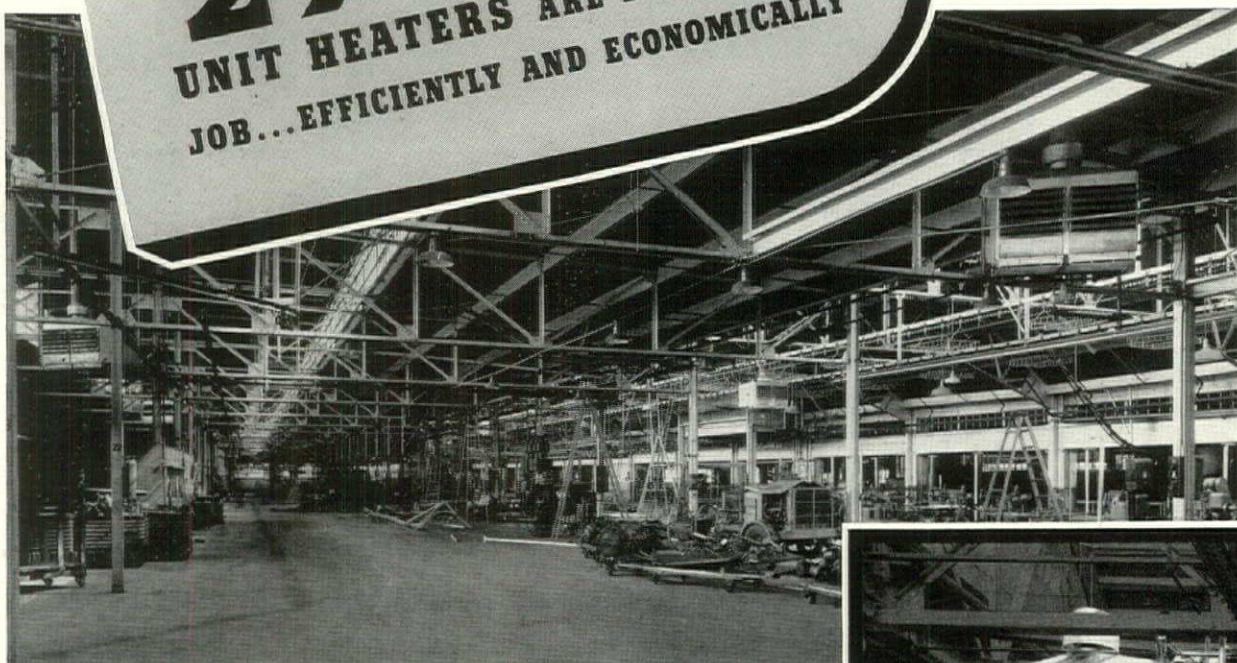
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FOR BUILDING PURPOSES

A C K N O W L E D G E D M E R I T .

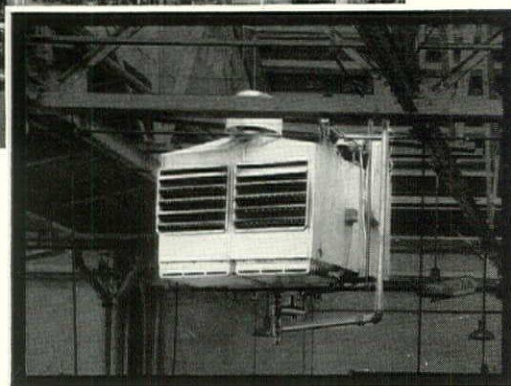
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29 JANITROL TWIN
UNIT HEATERS ARE DOING A BIG
JOB...EFFICIENTLY AND ECONOMICALLY



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Suspended from the ceiling, Janitrol supplies volumes of directed heat, when and where you want it most. Designed in 16 sizes (from 45,000 to 400,000 B.T.U. per hour) for either the small store or large industrial plant, Janitrol gives the architect that greatly desired flexibility in specification that no other type of heating system can supply... When you specify Janitrol unit heaters, you have the assurance of definitely satisfying the client on the basis of convenience, comfort and real economies in fuel expense.

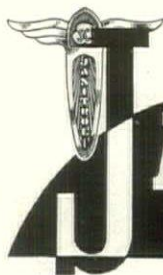
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● At these Chrysler Corporation warehouse and plant extensions on E. Jefferson Avenue, Detroit, these 29 model 400 Janitrol unit heaters (400,000 B.T.U.) were picked to do a big heating job at no sacrifice to floor space. The above inset shows a typical method of installation.



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The Press Shop—one of two new buildings of Ford Motor Company, Dearborn, Michigan. Albert Kahn, Inc., Architects

Albert Kahn

FEATURES MODERN, ECONOMICAL DAYLIGHTING AND AIRATION

IN THE WORLD'S LARGEST STEEL WINDOW INSTALLATION

the two new buildings of the Ford Motor Company, the Press Shop and the Tool & Die Plant, Fenestra presents the World's largest installation of Steel Windows. It is an excellent example of economical daylighting and aeration in modern industrial buildings.

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Name

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FORUM OF EVENTS

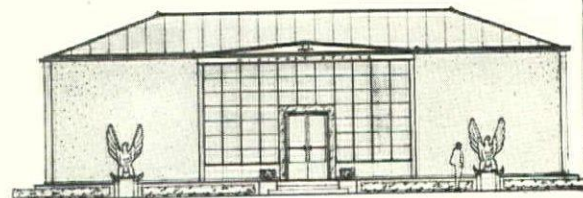
U. S. ARCHITECTS SUBMIT...

EARLY last month nine architects, representing a full range of U. S. architectural opinion, met in Washington, looked at some 600 post office designs, awarded ten prizes of \$1,000 each, ten honorable mentions. The competition, first for government buildings open to any and all architects since the Washington Monument design was so selected in 1836, was hailed by advocates of the competition method as the greatest victory to date in their campaign.

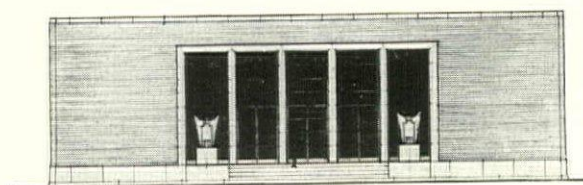
Three regions were indicated to competitors as possible locations for their buildings; most selected designs, however, were noncommittal combinations of U. S. classic and modern treatments, would go equally well in any of them. To what extent this reflects the obviously differing tastes of the jury was not indicated.

Big money winners were Carl F. Guenther, former Paris Prize winner, and John E. Miller, both of Cleveland. Guenther took two prizes, Miller got one, and a project on which they collaborated was also premiated.

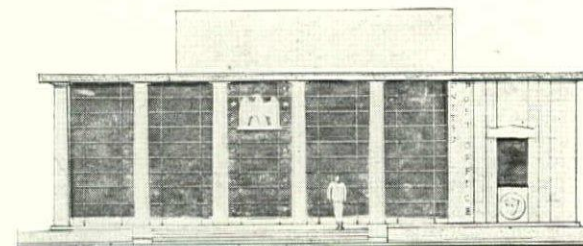
Second half of the Government's experiment with the competition idea, the design of a Post Office and Court House in Covington, Kentucky, will be judged early this month. The success or failure of these two competitive enterprises will determine the application of the competition method to larger buildings in the Government's construction program, and ultimately to all Federal building design. Results to date indicate that official architecture may well be taking a turn for the better.



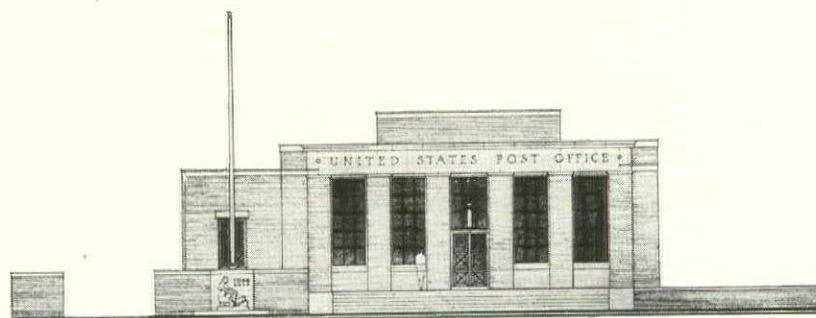
ARTHUR F. DEAM, SAUGATUCK, MICH.



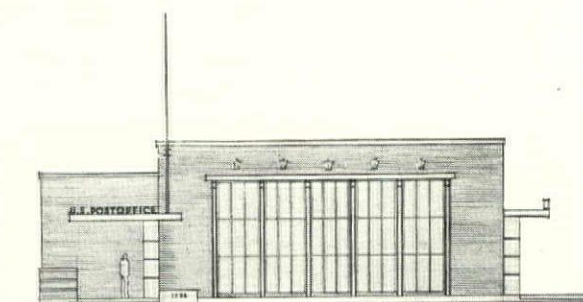
THEODORE FLETCHER, WILMINGTON, DEL.



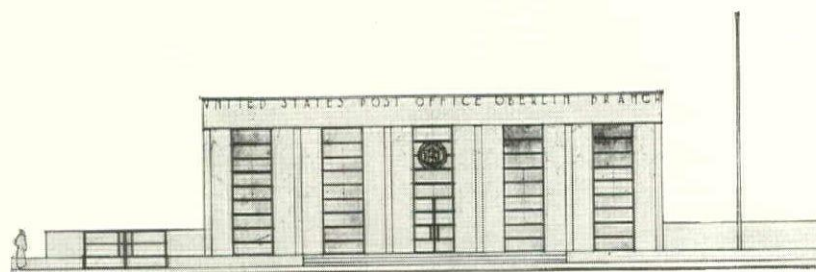
SALVATORE GRILLO, NEW YORK, N. Y. (MENTION)



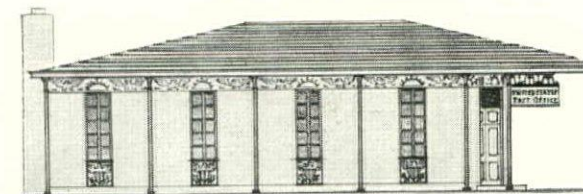
FRANCIS W. ROUDEBUSH, NEW YORK, N. Y.



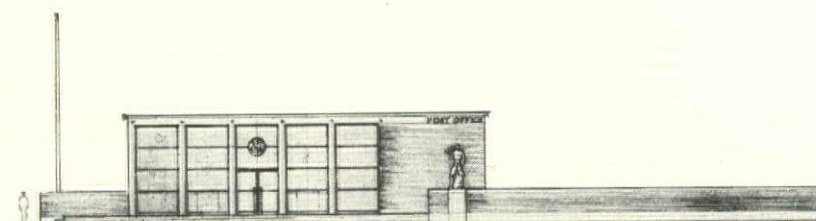
T. MARSHALL RAINEY, CINCINNATI, OHIO



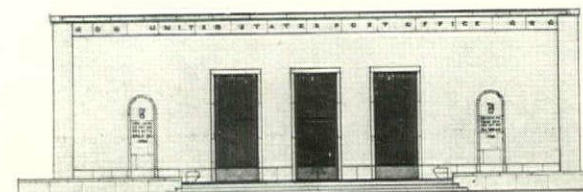
CARL F. GUENTHER, CLEVELAND, OHIO



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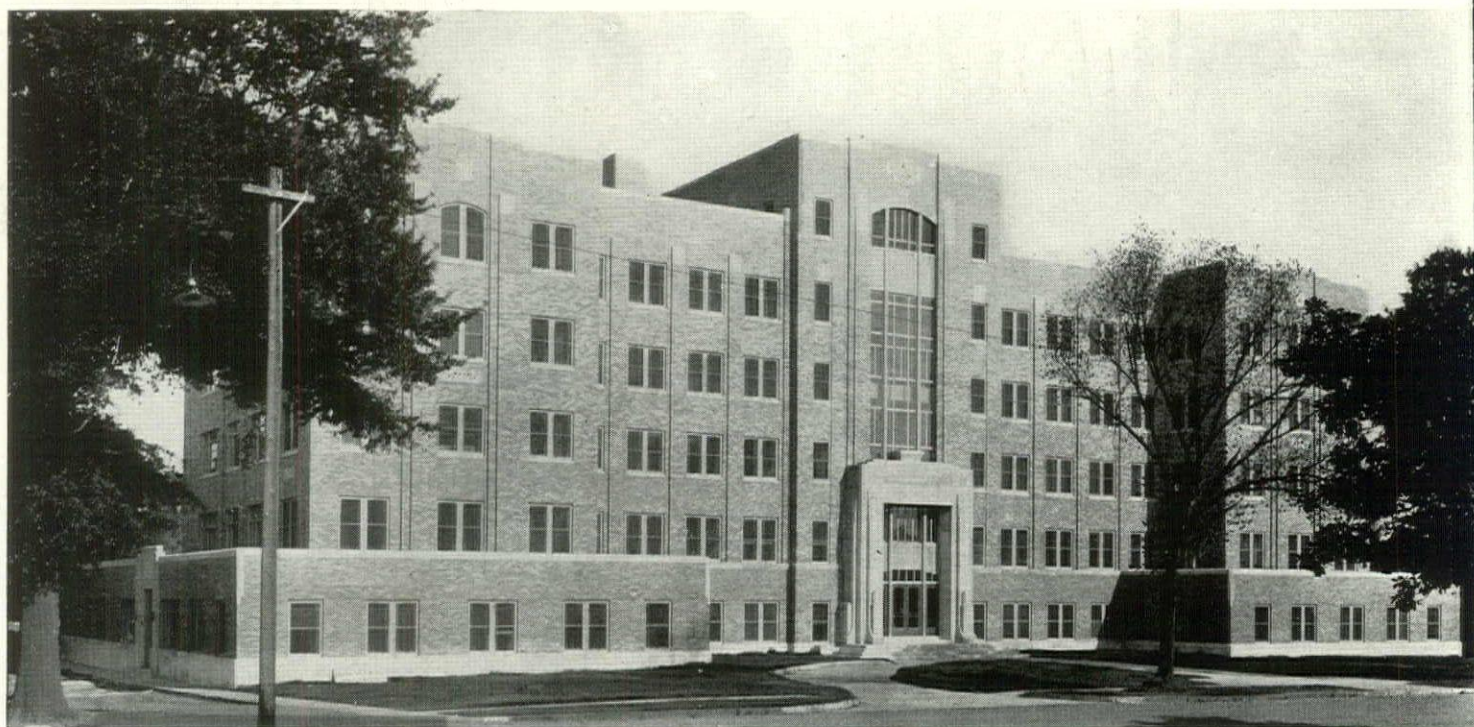
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BRANCHES IN PRINCIPAL CITIES

FORUM OF EVENTS

(Continued from page 8)



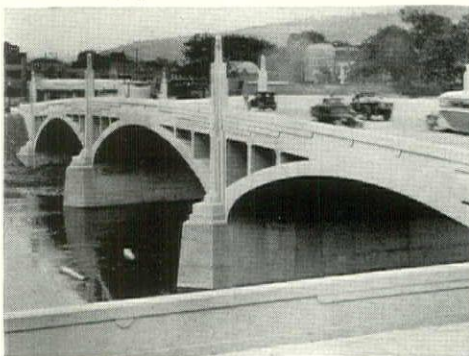
681 SCHOOLS AND OTHER EDUCATIONAL BUILDINGS

LITTLE Building and little architects have been extended a helping hand by Government in the form of the National Housing Act amendments. Middle-sized Building and its architects thank Government for the WPA program. Last month Big Building and its underworked host of architects and engineers clapped hands as Government announced 2,595 projects to be constructed under the revived PWA at an estimated cost of \$637,141,609. Reason: bulk of the Administration's new projects will fall into the great "upper-third" of Building, the average project cost being about \$250,000.

Typical of the upper-third's work and a forecast of the nature, number and cost of the types of projects scheduled for construction under PWA's new program are the samples presented on this and the following page — projects completed under PWA's predecessor program.

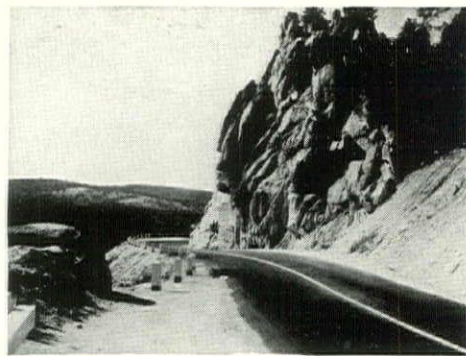
BUILDING'S UPPER-THIRD

1,844 NON-FEDERAL PWA PROJECTS—\$477,406,638.



83 BRIDGES.

De Clercq



219 HIGHWAYS.



327 COURT HOUSES,

Wide World



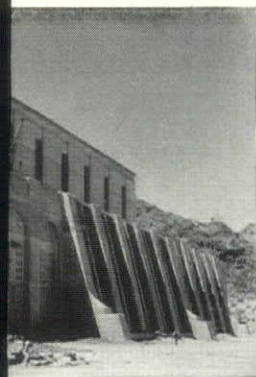
HOSPITALS AND

Wide World

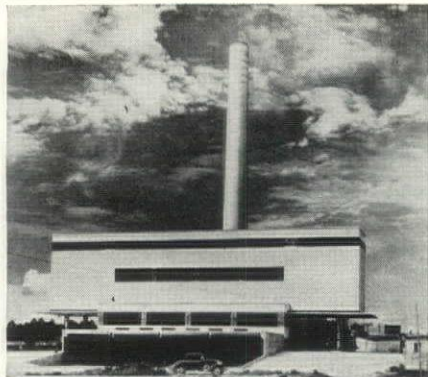


PRISONS.

Wide World



2 PUMPS,



INCINERATORS AND

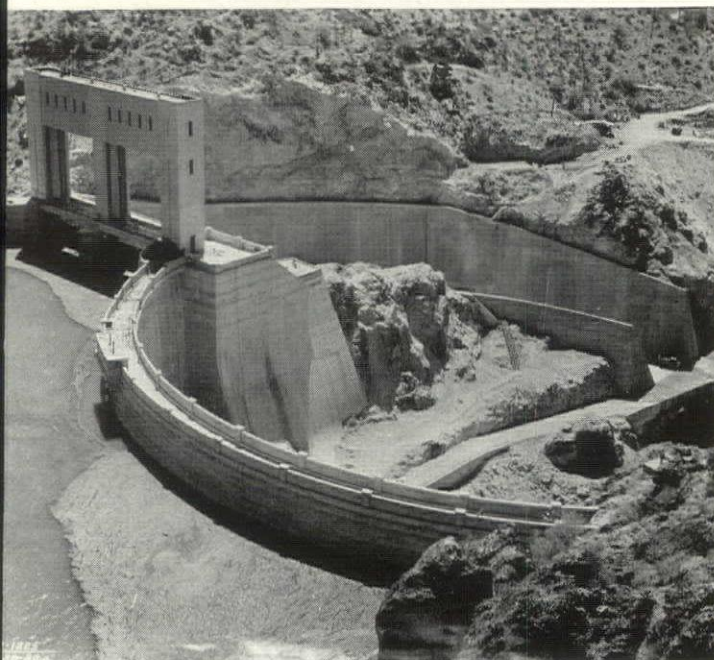


SEWAGE PLANTS.



92 OTHER PROJECTS.

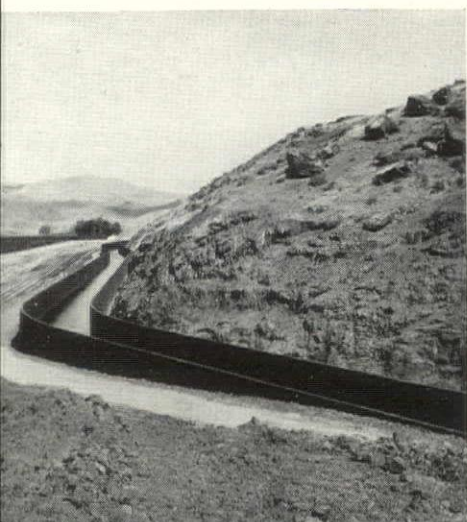
61 FEDERAL PWA PROJECTS—\$159,734,971.



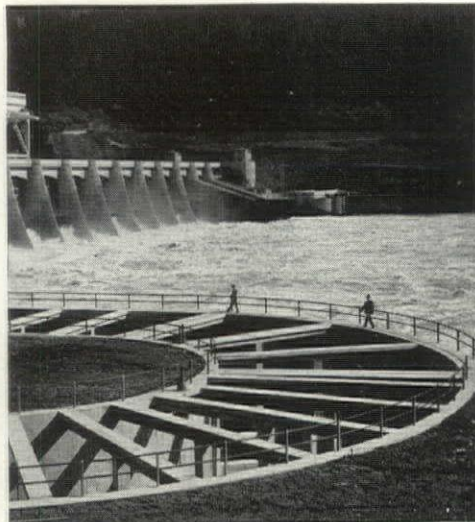
RECLAMATION PROJECTS—\$30,500,000.



ARMY AND NAVY PROJECTS—\$77,878,000.



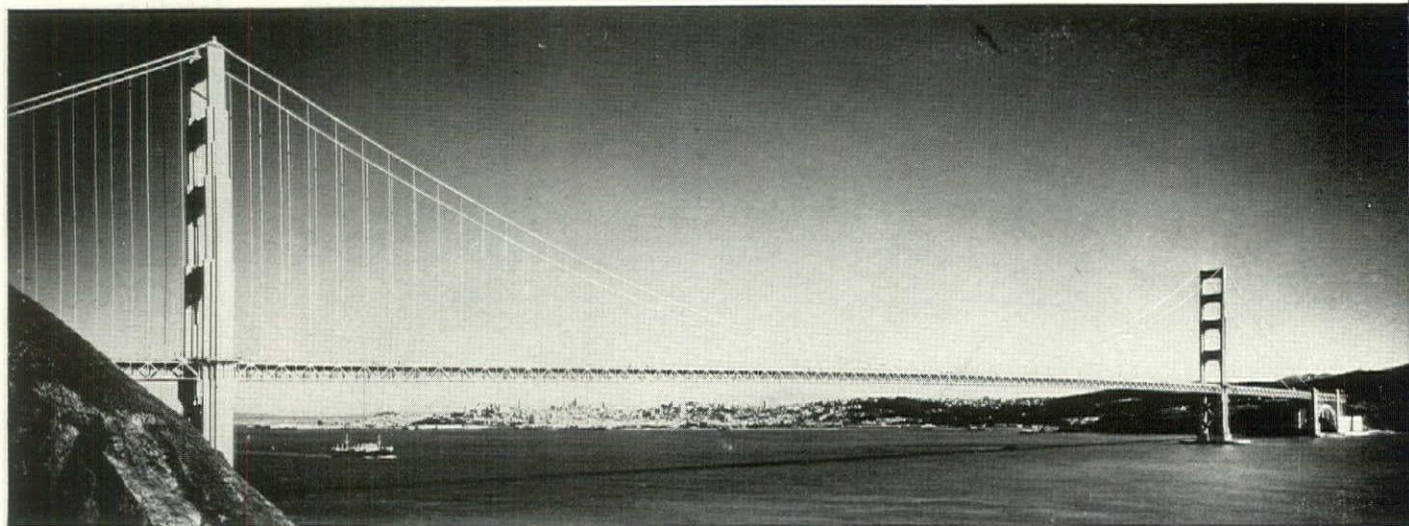
IRRIGATION—\$5,313,000.



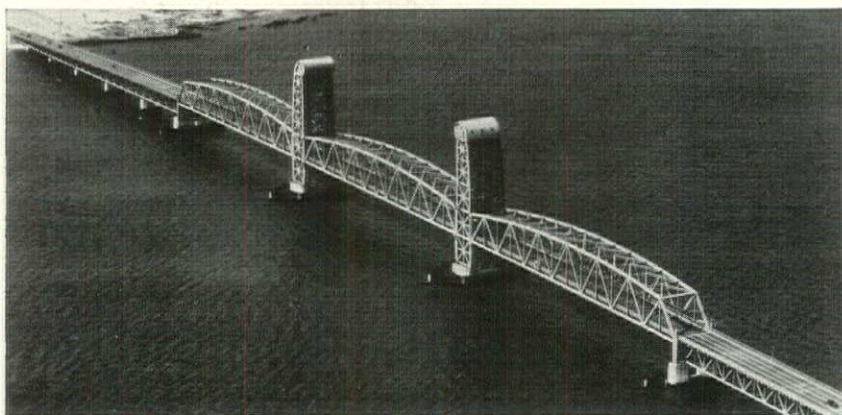
FISH LADDERS—\$1,055,350.



SURVEYS, ETC.—\$44,988,621.



MONUMENTAL—Golden Gate Bridge, San Francisco, Calif., Joseph B. Strauss, Chief Engineer, Clifford E. Paine, Assistant.



MOVABLE—Marine Parkway Bridge, New York City, Aymar Embury II, Architect



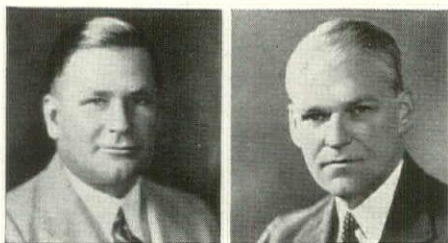
SMALL—Chesterfield-Brattleboro Bridge, New Hampshire, Harold E. Langley, Designing Engineer.

SIGHT OF A BRIDGE invariably evokes admiration from most people. Most of this is undoubtedly due to a natural human respect for engineering skill in overcoming environment. To acknowledge bridges of outstanding design, the American Institute of Steel Construction annually awards prizes, selected those presented here as the most beautiful built during 1937.



International Commercial Photo

MEDIUM—Little Hell Gate Bridge, New York City, Aymar Embury II, Architect.



Int. News

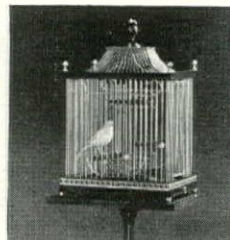
Acme

RETAINED in the last deficiency bill passed by Congress was an item of \$500,000 to start work on the much-disputed Thomas Jefferson Memorial. Few Federal building projects have ever aroused such controversy, no other received the approval of Congress lacking endorsement by the Commission of Fine Arts. Delayed approximately one and a half years, Architects Higgins and Eggers (left and right, above), successors to John Russell Pope, anticipate completion by 1940.

FOR DISCERNING PEOPLE as well as sensitive birds there is now available this group of authentic period bird cages. Idea behind the new line is to establish such pieces as furniture, overcome their classification as hardware. Styled by famed designer Lurelle Guild, each incorporates all the newest ideas in bird cage mechanics—wide doorways, movable spring perches and sliding tray bottoms. Designer Guild has the original of the "Early American" cage in his possession. The "Sheraton" is a museum piece copy; the others, original designs.



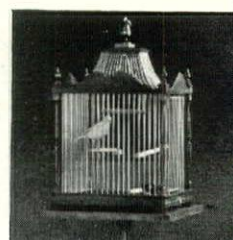
CHIPPENDALE




DUNCAN PHYFE



SHERATON



EARLY AMERICAN

An illustration of a bedroom interior. On the left, a bed with a dark headboard and a light-colored, polka-dot bedspread is partially visible. To the right of the bed is a dark wooden nightstand with a single drawer. On top of the nightstand is a rotary telephone. A dashed line representing a telephone wire runs from the telephone, down the side of the nightstand, across the wall to a standard electrical outlet, and then continues down the wall. A sign with a torn edge is placed over the left side of the illustration, containing the text 'TODAY'S HOUSE is ready for TOMORROW'S TELEPHONES'.

TODAY'S HOUSE is ready for TOMORROW'S TELEPHONES

CHILDREN GROW UP . . . family needs change . . . so the house you design today should be planned for tomorrow as well. Built-in telephone conduit planned to serve both present and future telephone needs adds greatly to the flexibility and convenience of a home.

• COSTS LITTLE DURING CONSTRUCTION

One or two lengths of small pipe—running from basement to upper floors—usually provide conduit adequate for the small house. The cost per telephone outlet is about the cost of an electrical outlet.

• PRESERVES BEAUTY OF WALLS AND FLOORS

Small outlet plates give access to the conduit. When

wires are installed, walls and floors need not be pierced, exposed wires are avoided.

• CARRY WIRES THROUGH BLOCKED WALLS

Insulation, fire-stops, stud bracing, and many of today's building methods and materials make it impossible to "fish" wiring through completed walls. Conduit built in during construction allows wiring changes or additions at any time—with all wiring concealed.

Your telephone company's "Architects' and Builders' Service" will be glad to help you plan practical and economical conduit layouts for your projects—without charge.



TWO PRIZE-WINNING



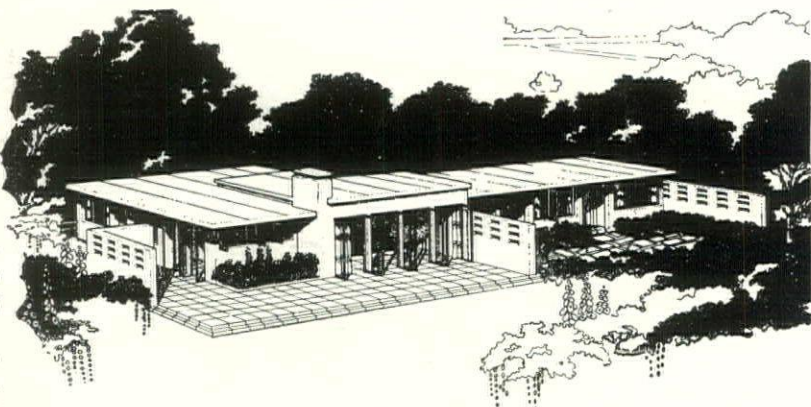
Working areas are compact and convenient . . . Unique advantages of GAS fuel permit concentration of equipment.

All house-keeping facilities are closely coordinated. Both architects have capitalized on the cleanliness of gas, and the striking, space-saving designs of the new gas appliances.

This centralization not only provides for convenient operation, but also assures economical construction. Elaborate flue and chimney work is avoided. Expensive basement excavation is saved, because no fuel storage space is required.

And operating costs in the house where *gas does the 4 big jobs* are lowest in history! Gas is more economical than ever. Gas equipment is more *efficient* than ever.

All-gas homes are easier-to-plan, easier-to-sell, easier-to-keep. Consult with your local Gas Company technicians for full information and detailed specifications of the new gas ranges, refrigerators, and water and house heating equipment.



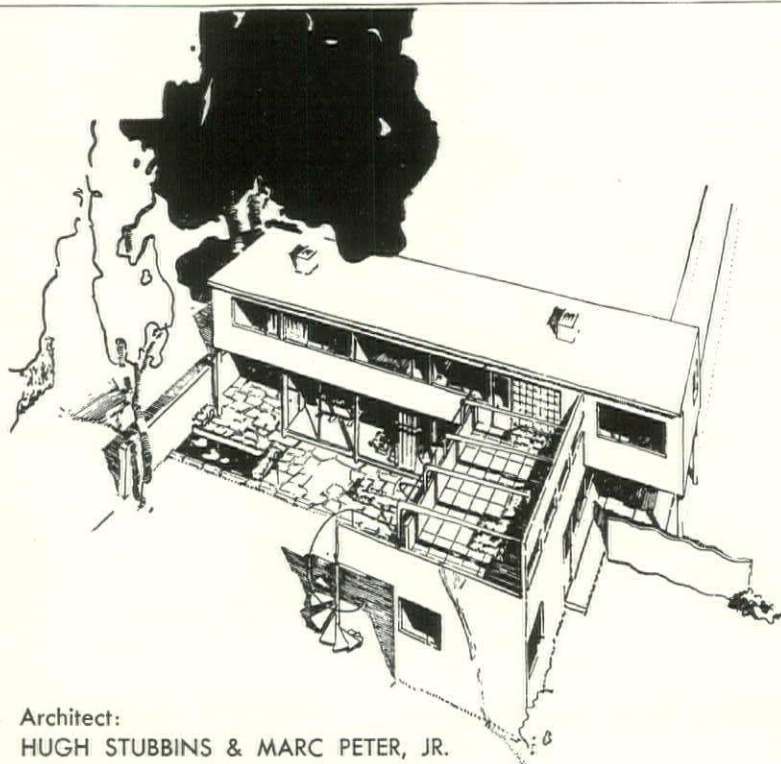
Architect: JOSEPH SHILOWITZ
26 Journal Square Building, Jersey City, N. J.

LET
GAS
DO THE 4 BIG JOBS

**COOKING
WATER HEATING
REFRIGERATION
HOUSE HEATING**



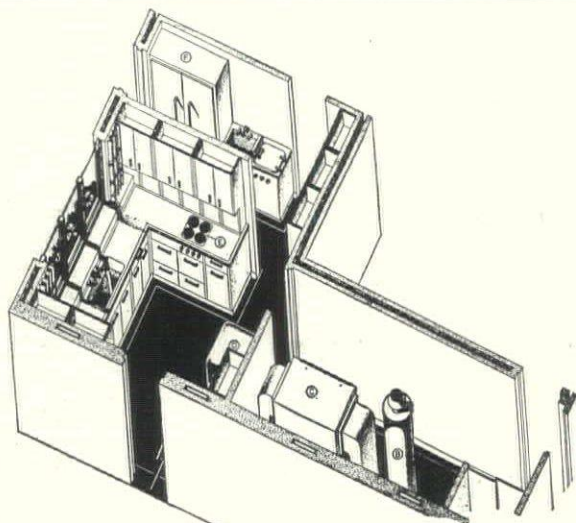
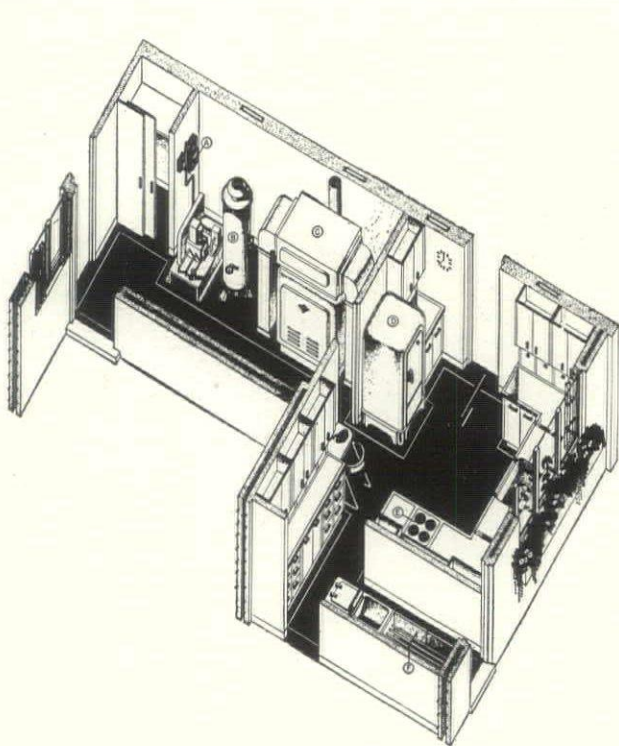
Be sure the gas appliances you specify bear the Approval Seal of the American Gas Association Testing Laboratories.



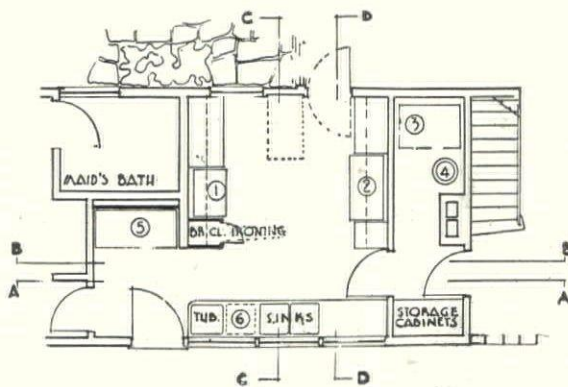
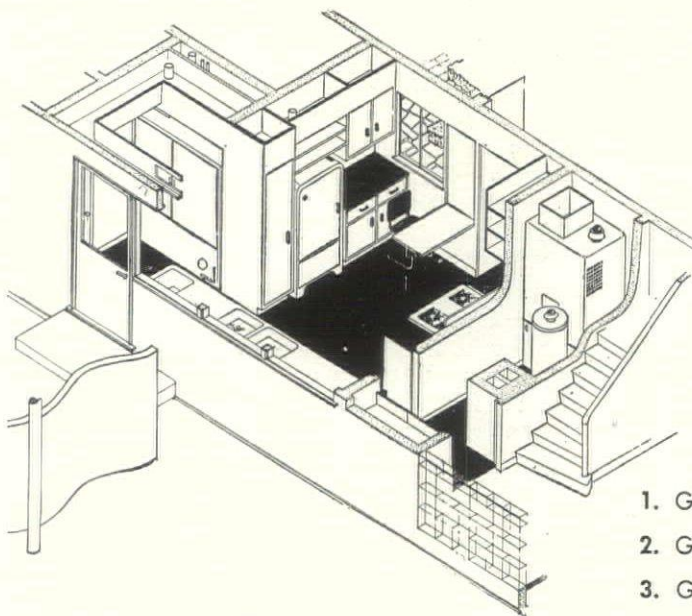
Architect:
HUGH STUBBINS & MARC PETER, JR.
1003 Park Square Building, Boston, Mass.

DESIGNS IN THE

Competition



- A. Compressor
- B. Gas water-heater
- C. Gas-operated air-conditioner
- D. Gas refrigerator
- E. Gas range
- F. Gas laundry dryer



- 1. Gas refrigerator
- 2. Gas range
- 3. Gas-operated air-conditioner
- 4. Gas water-heater
- 5. Gas laundry dryer
- 6. Washing machine

Now build an **AGA All-Gas Home** ... enter the \$10,000 prize competition for builders and their architects

The All-Gas Home Building Competition closes July 1, 1939. Write for entry blank and free booklet, containing all the information you need. Competition Director, American Gas Association, 420 Lexington Avenue, New York City.



*Marching along
together*

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Products - Conduit - Tin Plate - Bars
Rods - Wire - Nails - Unions - Tie
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YOUNGSTOWN

Except for steel, the shoes we wear would be little better than medieval sandals, with their shapeless ugliness and destruction of foot health.

The arch which assures comfort, safety, lasting appearance, is made by a steel brace concealed in the leather. Heels are possible because of steel nails. Steel eyelets keep the laces from pulling the leather. The laces thread easily because of steel tips--to say nothing of the steel machinery vital to processing the leather and making the shoes themselves.

It takes almost 100 pieces of steel to make most of modern shoes, and they are only a small fraction of the thousands and thousands of pieces of steel everyone uses every day to make life comfortable and safe. For example, did you ever stop to realize the importance of steel to you, in your profession--and how much of it you employ? For the average small home using perhaps a ton of steel, to the large building using thousands of tons of steel is a vital necessity in construction. Youngstown's hot continuous strip mill building, an example of a large structure, contains 4,388 tons of steel and the mill which it houses weighs 15,000 tons; a total of 19,388 tons of steel, in a single unit, to produce a multitude of special steels to serve the needs of the architect and builder.

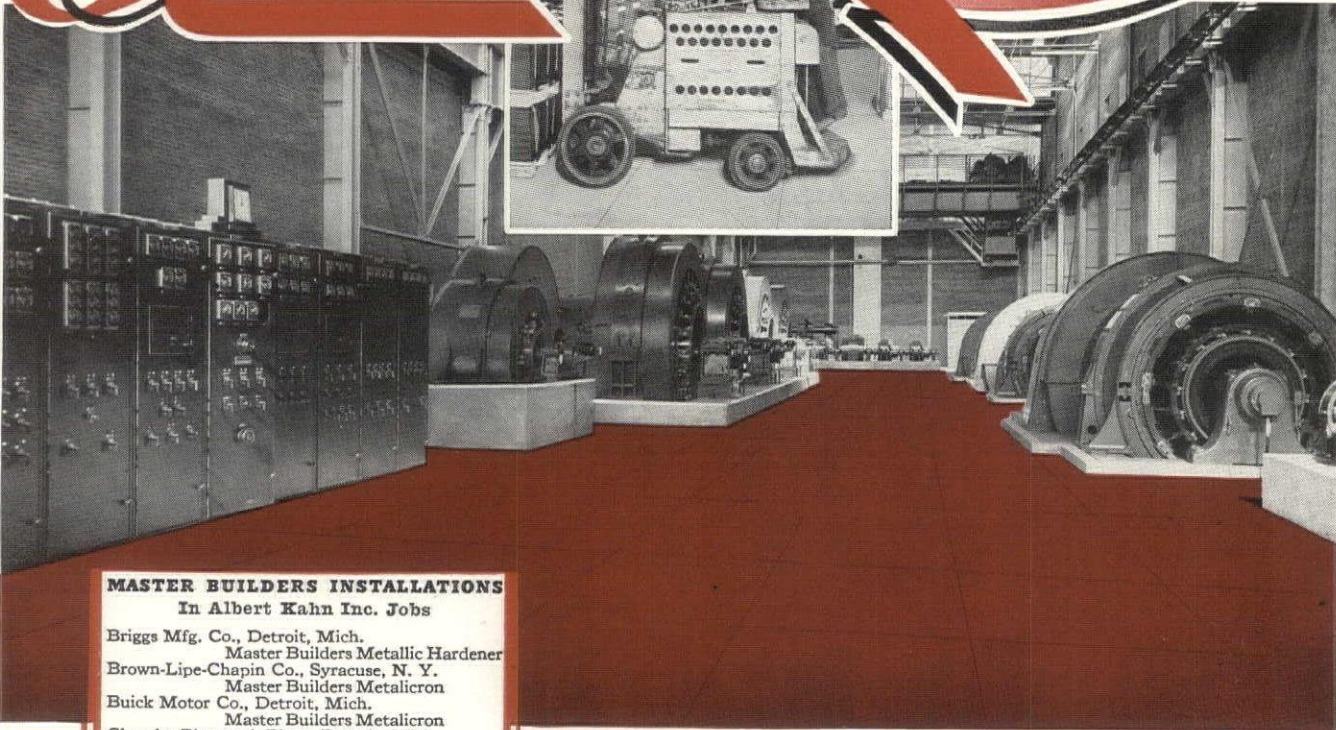
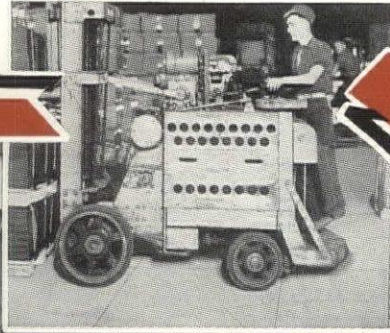
**THE YOUNGSTOWN SHEET
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Manufacturers of Carbon and Alloy Steels

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THE IDEAL FLOOR *for the* "SHOW PLACES" and "WORK PLACES"



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 Chrysler Plymouth Plant, Detroit, Mich.
 Master Builders Metallic Hardener
 Chrysler Service Bldg., Detroit, Mich.
 Master Builders Metallic Hardener
 Dodge Motor Co., Evansville, Ind.
 Master Builders Metallic Hardener
 Firestone Steel Prod. Factory, Riverview, Mich.
 Master Builders Masterplate
 Ford Motor Company, River Rouge Plant
 Master Builders Metalicron
 Ford Motor Company, River Rouge Glass Plant
 Master Builders Metalicron
 Ford Motor Company, Dearborn Tire Plant
 Master Builders Metalicron
 Ford Motor Company, Edgewater, N. J.
 Master Builders Metallic Hardener
 Ford Motor Company, Norfolk, Va.
 Master Builders Metalicron
 Ford Motor Company, Seattle, Wash.
 Master Builders Metalicron
 General Motors Sales Service Bldg., Chicago, Ill.
 Master Builders Red Colormix
 H. J. Heinz Co., Medina, N. Y.
 Master Builders Master Mix
 H. J. Heinz Co., Leamington, Ontario
 Master Builders Master Mix
 Heinz Co. Warehouse & Office Bldg., Detroit, Mich.
 Master Builders Metalicron
 Glenn L. Martin Co., Baltimore, Md.
 Master Builders Saniseal
 Packard Motor Co., Boston, Mass.
 Master Builders Metallic Hardener
 Packard Motor Co., Cleveland, Ohio
 Master Builders
 Colormix and Saniseal
 Packard Sales Room, Newark, N. J.
 Master Builders Metallic Hardener
 Packard Motor Co., New York City
 Master Builders Metallic Hardener
 Pratt & Whitney Aircraft Co., Hartford, Conn.
 Master Builders Metalicron
 Parke Davis Bldg., Detroit, Mich.
 Master Builders Metallic Hardener
 Squibb Bldg., New York City, N. Y.
 Master Builders Master Mix
 Strip Mill & Welfare Bldg., Cleveland, Ohio
 Master Builders Colormix,
 Metalicron, Saniseal, Embeco

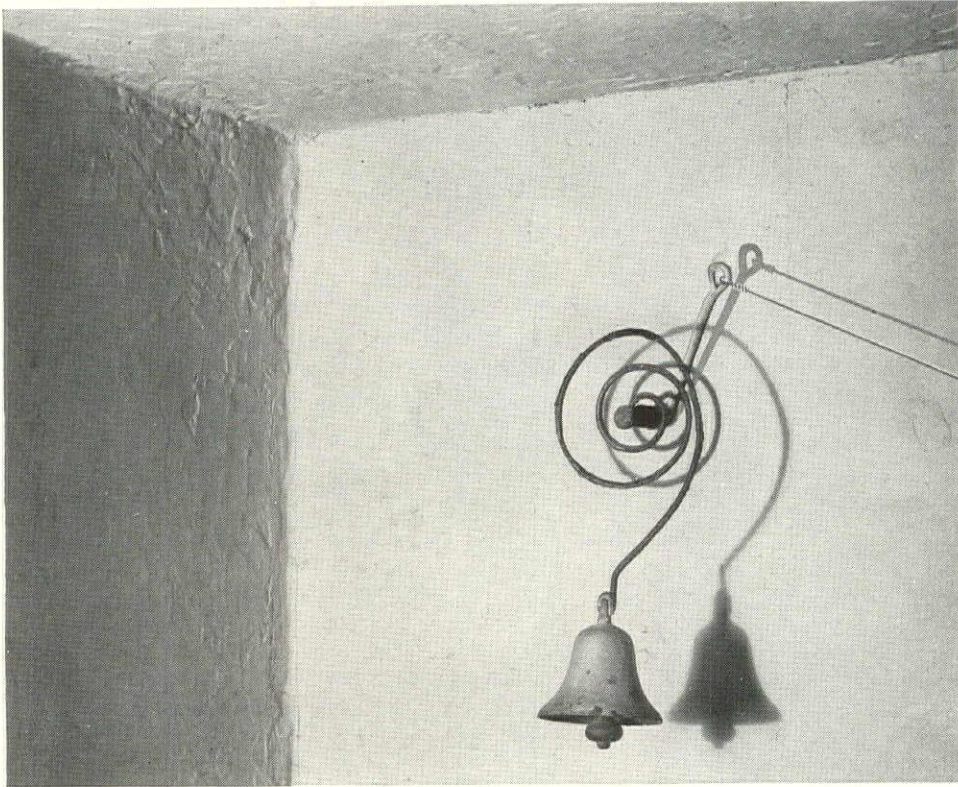
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SPECIFY Master Builders Colormix for the "show places" of *your* industrial projects. For work areas with heavy traffic, specify Master Builders Masterplate metallic armored floors . . . they guarantee lasting floor efficiency for the life of the building . . . real protection against today's heavy traffic, against dusting and corrosive action of oils, acids, and alkalis.

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INTRACOMMUNICATION

Means of communication have progressed mightily since the days of the bell-pull and speaking-tube. Through the agency of electricity, these crude mechanical devices have been replaced by a host of electro-magnetic instruments almost bewildering in their variety. That this progress has had a profound effect on building and architectural design is an understatement; it is not too much to say that the whole structure of modern life depends to a large extent on modern methods of communication.

Within buildings, a proper system of communication between the various rooms and spaces may have more to do with the successful functioning of the whole than, for instance, good circulation or proper placement of rooms. Not only may failure to take advantage of recent developments in this field seriously handicap the proper function of the plan; it is also true that otherwise difficult planning problems may sometimes be easily solved by the installation of one or another of the intracommunicating devices now available. Finally, much equipment of this type—for both esthetic and utilitarian reasons—is best built-in; loud-speakers, for example, should wherever possible have permanent, planned locations. Selection of the type of intracommunicating equipment for every job is therefore peculiarly a concern of the architect.

Most architects and builders are familiar with one or another of the types of modern intracommunicating equipment now available. Few, however, are entirely aware of the great variety of systems now on the market. Some of these—such as the “electric ear” and modern systems of program distribution—are comparatively recent developments. Others have been brought up to date and improved to an extent not generally realized. Lastly, development of the radio and electric phonograph, besides resulting in vast improvements in sound transmission, has also considerably increased the public demand for intracommunicating devices.

Because of the great variety of equipment now available and because the functions of the various kinds of equipment so often overlap in one or another respect, it is important that the field of intracommunication be viewed as a whole before deciding on one or another basic type. Each has some primary function which it performs better or cheaper than any other, but each may, by the addition of equipment, be made to perform other functions as well. Selection, therefore, becomes a matter of discovering which combination of equipment serves all of the functions desirable in a specific instance.

(Continued on page 20)

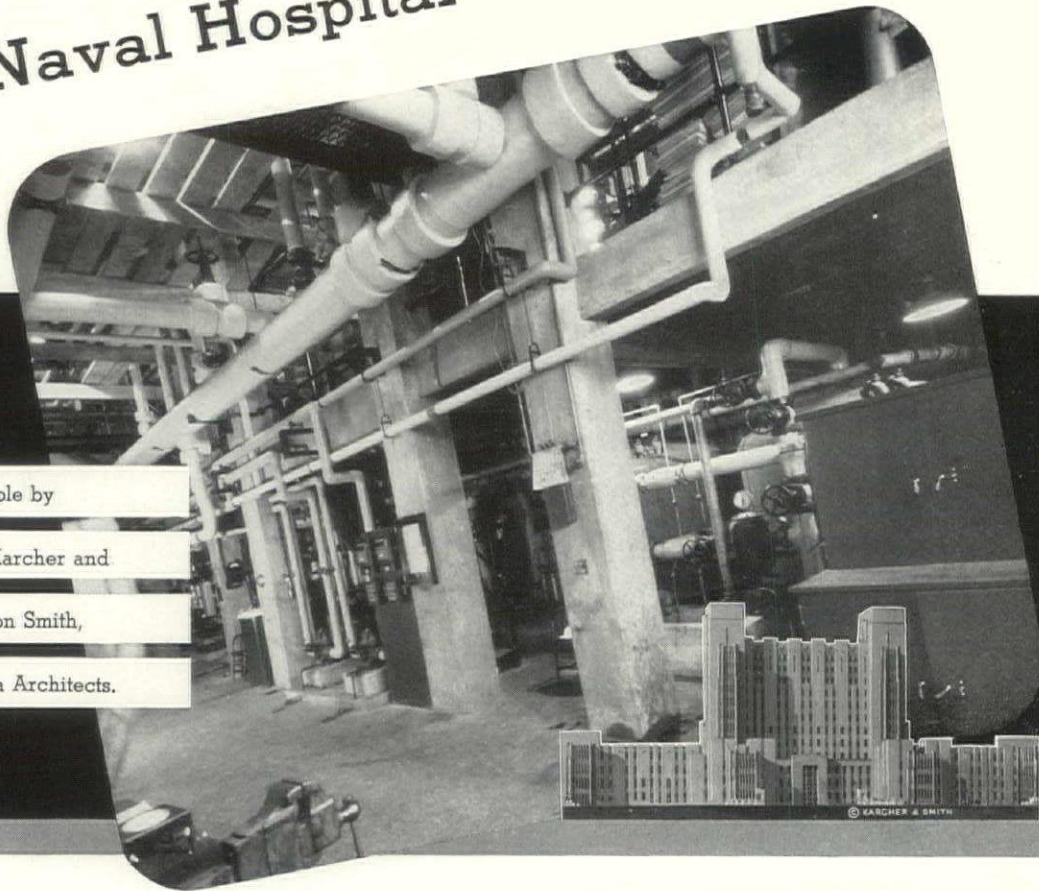
How **WROUGHT IRON** helps combat corrosion in the Naval Hospital

Example by

Walter T. Karcher and

Livingston Smith,

Philadelphia Architects.



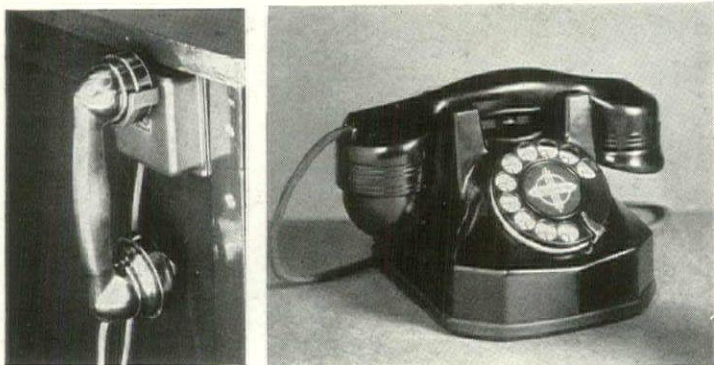
In the United States Naval Hospital, Philadelphia, Pa., wrought iron pipe was installed in a number of places where corrosion could—by past experience—be expected. Cold water lines above ground, fire lines, drinking water system lines, the water softener system, and interior rain water lines were Byers galvanized Wrought Iron. Gas piping, and heating system return lines were Byers black Wrought Iron . . . the latter extra heavy.

Perhaps Byers Wrought Iron can help solve some corrosion problem for you, also. To find out . . . just write, outlining the conditions. Our Engineering Service Department, without cost or obligation, will determine the probable

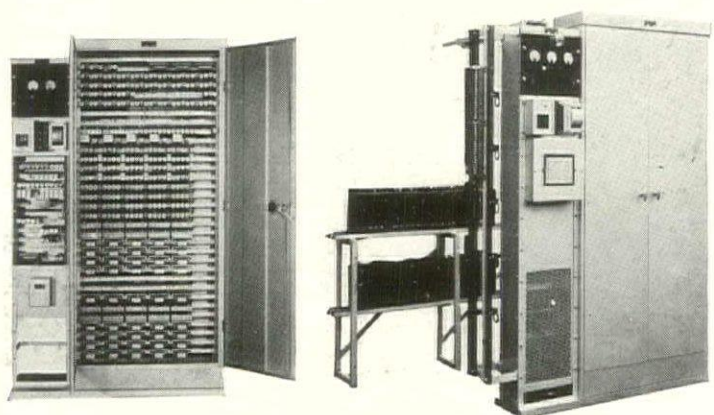
corrosive conditions . . . relate these to similar conditions existing elsewhere . . . interpret the results in terms of experience gained in three quarters of a century of contact with corrosion problems . . . and confirm the recommendations with actual service records. If you would like a bulletin, "Wrought Iron for Piping Systems," ask our nearest Division Office . . . or write to headquarters. A. M. Byers Co., Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Chicago, St. Louis, Houston, Seattle, San Francisco.

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WROUGHT IRON
Tubular and Flat Rolled Products

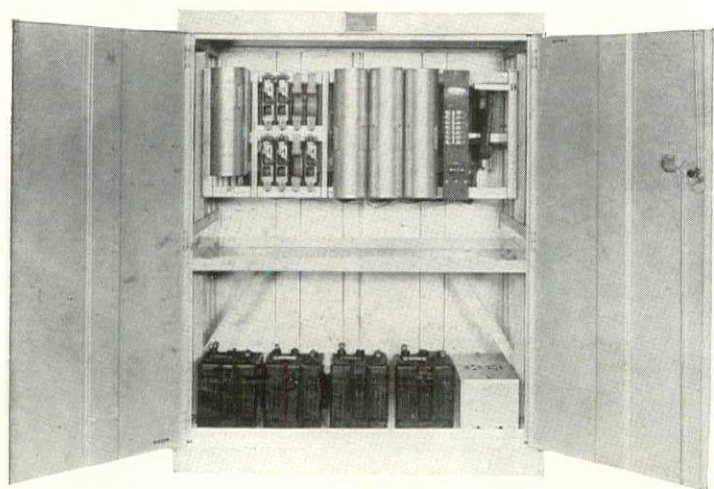
Specify Byers Genuine Wrought Iron Pipe for corrosive services and Byers Steel Pipe for your other requirements



New phones for private use: at left, hanging desk set, Edwards and Co., Inc., Norwalk, Conn.; at right, self-contained desk set requiring no bell box, American Automatic Electric Sales Co., Chicago, Ill.



Open and closed view, "All-Relay" private automatic telephone exchange, The North Electric Mfg. Co., Gallion, Ohio.



Typical "P-A-X" automatic switchboard, complete with batteries and charging rectifier, cabinet open. American Automatic Electric Sales Co., Chicago, Ill.

Intracommunicating systems are of two basic types: those which provide for the transmission of actual sound—from vocal sources, phonograph, or radio sources—and signal systems which transmit electrical impulses which actuate audible or visible signals at the point of reception. Under these two main headings come a multitude of different systems, ranging, in the first group, from the simple two-way telephone to the complete program distribution system furnishing every type of entertainment, and in the second group, from door bells to automatically actuated fire alarms.

SOUND TRANSMISSION

Systems for sound transmission within buildings may be classified in three general groups, according to use: those for vocal communication, sound reinforcement, and sound distribution. The first of these—vocal communication—includes the ordinary "secretive" telephone and loud-speaking telephones connected between rooms. The second—sound reinforcement—is intended primarily to make a source of sound audible over a larger area, such as an auditorium or other large room, by means of amplifiers and loud-speaking telephones. In the third group—sound distribution—a variety of systems for distributing voice and music to a series of rooms by means of an amplifier or amplifiers, a wiring system, and loud-speakers in each of the rooms.

So many variations and combinations of these general types are available that it is possible to classify and describe them only in terms of fundamentals or by means of typical examples. The first method is valuable in indicating the scope and variety of available equipment—and its adaptability to every kind of problem; the second in describing the details of systems as usually installed for ordinary purposes. Both are necessary parts of the background required to determine the type of equipment appropriate to a particular installation.

All systems of sound transmission consist essentially of a transmitter or transmitters connected to a receiver or system of receivers. Transmitters may be of either the "secretive," or ordinary telephone type, or may consist of microphones sensitive to all surrounding sounds, radio or phonograph "pick-ups." Receivers may be secretive or loud-speaking telephones. There may be any number of transmitters and receivers of either type, according to the purpose for which the system is designed. In addition to these variations, loud-speaking telephones may alternately be used as pick-up microphones, or "listening stations," by reversing the electric circuit. One type, which may be used with equal facility for vocal communication, as an "electric ear," or an announcing system, uses instead of a wiring system of its own, the regular wiring system of the building.

It is because of the almost infinite number of possible combinations of these variables that sound transmission systems are difficult to classify. An ordinary two-way telephone may become an announcing system through the addition of a simple amplifier and loud-speakers; an announcing system may become a system of program distribution merely by hooking up a radio or phonograph as the sound source. In each of the descriptions of typical systems given below it is therefore important always to remember that all may be made more or less complex simply by the addition or subtraction of individual items of equipment.

INTRACOMMUNICATING TELEPHONES

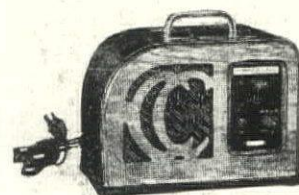
In addition to the extension and intracommunicating service furnished in connection with the regular outside telephone system, it is often desirable—for reasons of convenience or economy—to install private inside telephone systems. Equipment of this kind ranges from the simple apparatus replacing the old-fashioned loud-speaking tube in conjunction with apartment-house door bells, to fully automatic systems of 50 or more phones operating from a switchboard identical in every respect but size with that used for the outside dial phone. Such private telephone service is now available in a variety of forms adaptable to every conceivable need and purpose. The simplest private telephone apparatus is

the two-way, two-station system operated from dry-cell batteries. Such systems require only three wires: one for talking, one for listening, and one for signaling—and, of course, no switchboard or other station-selecting device. Any number of telephone stations may be interconnected in this way, but in order to signal the stations individually, additional wires are required, equal to the number of stations used. This is called a "multiple-station, common-talking, selective-ringing system," and is ordinarily considered practicable up to about ten stations—each instrument being connected to thirteen wires. By using double this number of wires (26 for 10 stations) it is possible to hook-up what is known as a "semi-secret system": one in which two to five separate conversations may be carried on simultaneously and privately, provided that none of the stations attempts connection with another already in use. Actually, of course, it is virtually impossible for the ten stations to be paired off in five separate conversations except by prearrangement, and unlikely that more than three conversations will ever be under way at the same time, but even this number is seldom necessary in actual practice. Connections in the type of system are established by revolving a dial or pointer to the number of the station to be called. If the station called is not busy, its bell will then ring until it is answered or the receiver hung up; if it is busy, the person making the call will overhear the conversation going on and may interrupt or take part in it. Except that other stations may thus cut- or listen-in on an established conversation, operation is otherwise exactly similar to an ordinary outside telephone. Such systems are operated from storage batteries which may be equipped with rectifiers for automatic charging. For systems of more than ten stations, and in all cases where complete privacy is essential, some form of central switchboard is required. This may be manual in operation—requiring at least the part-time services of an attendant, but in an increasing number of cases automatic switchboards, similar to those used with the dial telephone, are being used. Such switchboards are available in sizes for 10, 25, 50 and more stations, and are self-contained and entirely automatic in operation. Where a switchboard or automatic switchboard is used, connection with the various stations in the system are established exactly as with an outside phone, and are completely private. The number of separate conversations which can be carried on simultaneously is limited only by the number of "trunks" with which the system is equipped, but in most cases two trunks to every ten stations has been found to be sufficient.

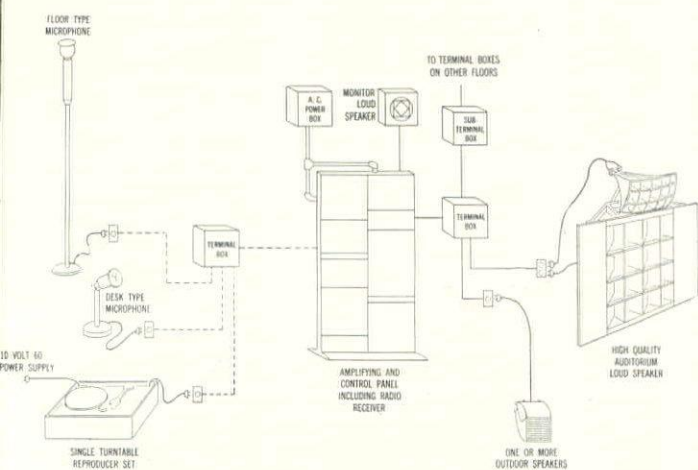
Manufacturers of automatic switchboards also equip their systems to provide several special services in addition to regular communication. These include the "code call," whereby persons not answering at their regular stations may be summoned to the



Zenith "Radio Nurse": at left, the "Guardian Ear," a sensitive microphone which picks up surrounding sounds, transmits them through the ordinary house wiring to the loud-speaker shown at the right. Both instruments may be plugged in anywhere on 60-cycle A.C. current. Zenith Radio Corp.

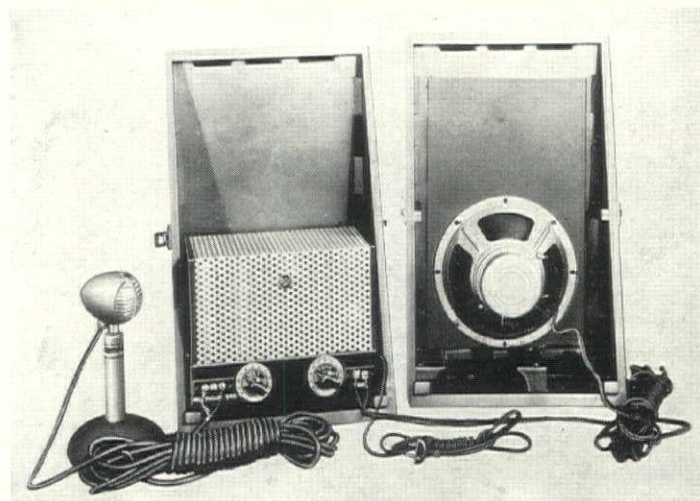


At left, RCA Victor-Phone "Wireless" inter-communicating system; RCA Mfg Co.; at right, "Carrier-Call" two-way communicating unit, American Carrier-Call Corp., New York. Like the "Radio Nurse", above, the units operate on the regular A.C. circuit, unlike it, each works both ways.



Courtesy, Western Electric Co.

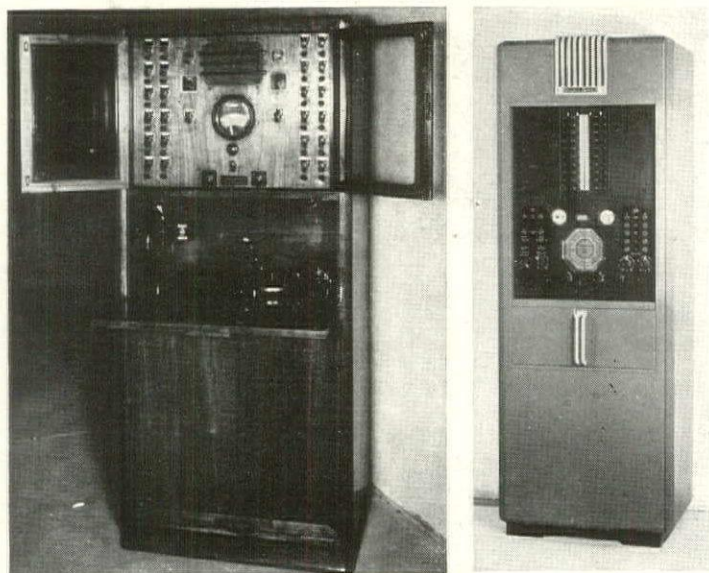
Typical sound reinforcements hook up for large auditoria. Shown are desk and stand type microphones, phonograph pick-up, amplifier and control panel, auditorium speaker, outdoor speaker, and connections for speakers in other rooms.



RCA portable sound reinforcement system: left, microphone and amplifier, right, loud speaker. Entire set forms a handy, suitcase-sized carrying case. Remote "mixer" unit enables operator to control the apparatus from a strategic point in the auditorium. RCA Mfg. Co.



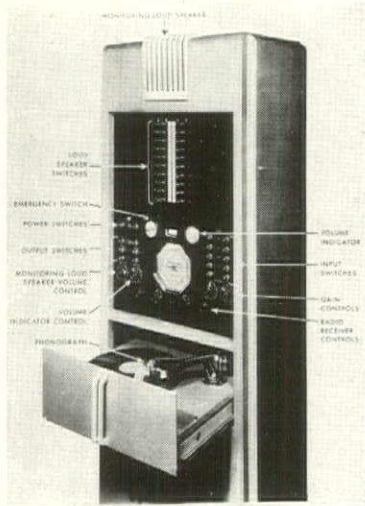
Stromberg-Carlson sound distribution systems for hospital use. Stromberg-Carlson Telephone Mfg. Co.



At left, I.B.M. "Schoolmaster" sound distribution system, International Business Machines Corp. Right, Western Electric program sound system, Western Electric Co.



At left, Stromberg-Carlson sound distribution system for schools. Right, detail view of Western Electric distribution system, phonograph turn table open.



phone by an automatic code signal audible throughout the building; "executive priority service," which makes it possible from designated stations to break into established conversations; a watchman's service, which automatically records the time and place of watchman's calls made on the regular telephones; connections for fire and burglar alarms, and "executive key calling," which provides connections to frequently called stations without dialing, by simply depressing a key.

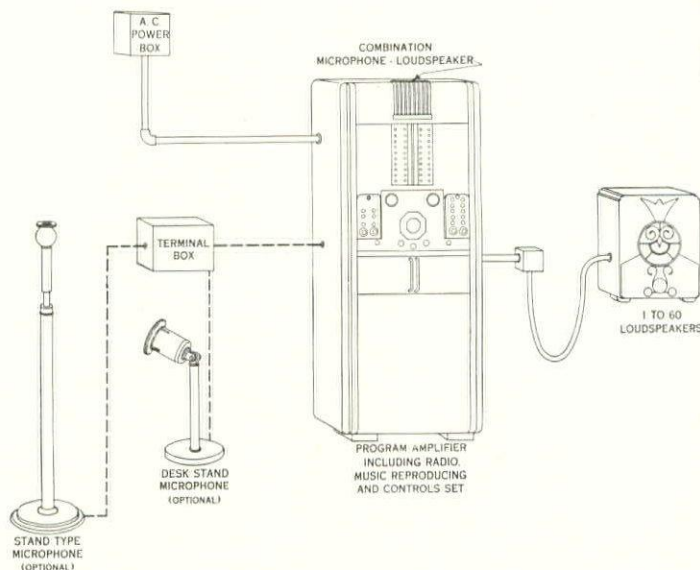
Loud-Speaking Telephones

Any of the above described systems may be equipped with loud-speaking telephone instruments, audible throughout the room in which they are located, and microphone-type transmitters which pick up sounds from a distance. Such "non-secretive" instruments however, as ordinarily installed require less wiring than regular telephones, because "talk-listen" keys are usually employed on the instruments—eliminating the need for separate wires for talking and listening, and because—where both instruments are loud-speaking—a separate signal circuit is not required. Such equipment must, on the other hand, be attached to some form of amplifier.

The simplest form of loud-speaking or non-secretive telephone therefore requires but one wire connecting two or more instruments which function alternately as talking and listening stations, with one of the stations fitted with a talk-listen key and whatever is said into this station audible through all the others, and whatever is said into any of the other stations audible at the central or control station. In one form, such systems dispense with a separate wiring system altogether, and are simply plugged into ordinary electric outlets.

With additional wiring, such loud-speaking telephone systems may be hooked up for selective talking, and with the addition of a signal system, made to function in the same way as secretive telephones. Double instruments, for both talking and listening, are also available—thus eliminating the otherwise necessary talk-listen key. Loud-speaking phones are used on executives' desks because of their ease of operation, for making announcements to a series of rooms separately or simultaneously, and as "listening stations"—the most recent application of this type being in the home, where wireless-type instruments are used to listen-in on the nursery from various points in the house. It is common to use loud-speaking and secretive telephone equipment in combination.

(Continued on page 56)



Courtesy, Western Electric Co.

Typical hook-up, program sound distribution system. Shown are stand and desk type microphones, control panel including phonograph and radio, and typical loud-speaker.

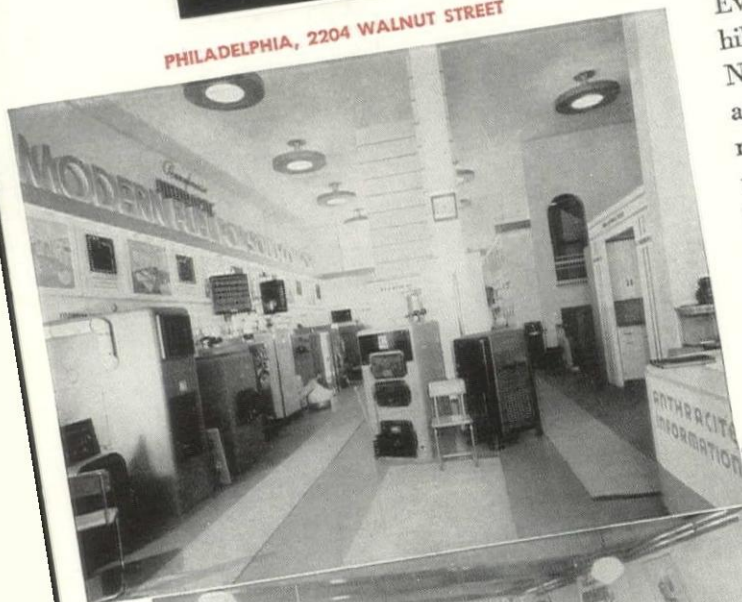
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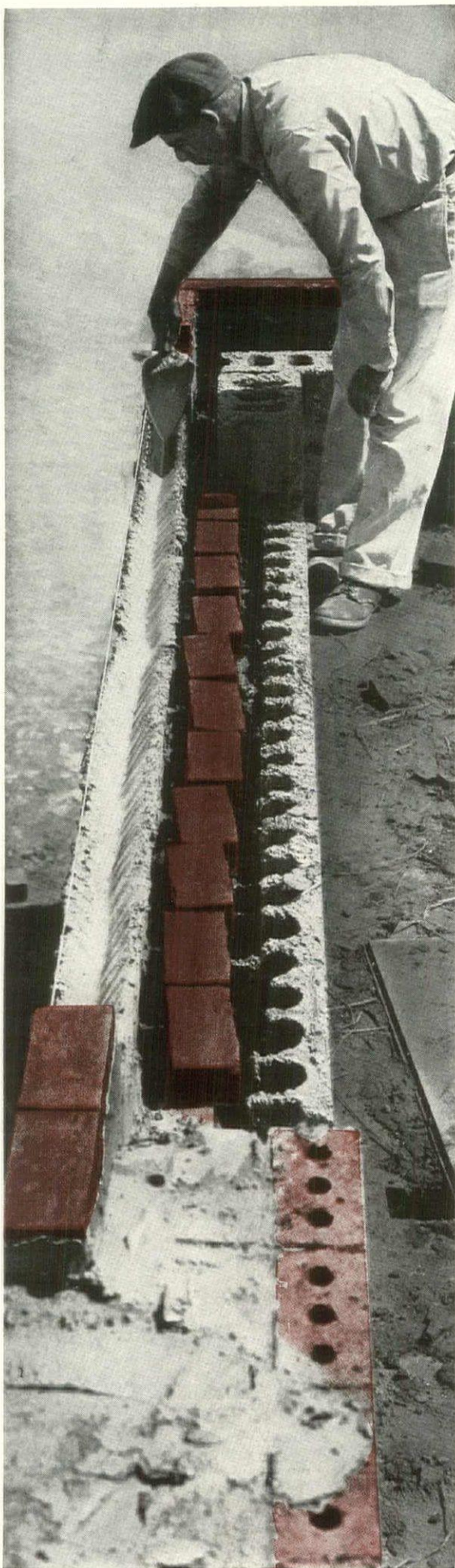
At the three permanent showrooms, all information regarding any heating requirement for new projects will be provided. Information about modernizing existing heating systems is also available.

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THE rate at which moisture is removed from the mortar by the suction of the brick has a marked effect on the bond between the brick and the mortar, and on the water-tightness of the wall. If the mortar is sucked dry too fast, it congeals immediately and the next course cannot be properly bedded. Furthermore, no water passes from this dry mortar into the brick. Therefore no bond is developed, and cracks may occur between the brick and the mortar, both in the bed and head joints. . . . *Brixment mortar has extremely high water-retaining capacity.* This keeps the brick from sucking the water out of Brixment mortar too fast, and prevents the mortar from losing its fine plasticity when spread out on the wall. This, in turn, permits a more complete bedding of the brick, an increased area of contact between brick and mortar, and a deeper penetration of the mortar into the pores of the brick. The result is a better bond, and a more water-tight wall. . . .
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Photo by Ewing Galloway, N. Y.

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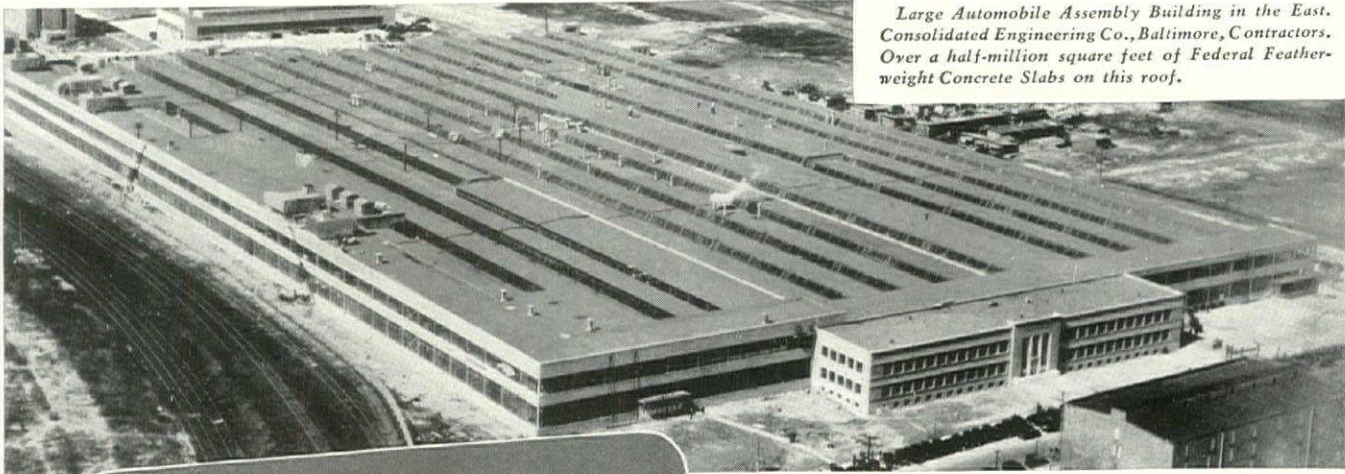
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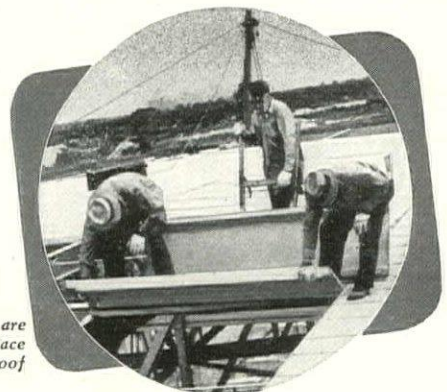
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FEDERAL ROOFS ARE IN SERVICE TODAY ON
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Test Building, Electro-Motive Corporation, McCook, Illinois. Subsidiary of General Motors Corporation. Thorgersen & Ericksen Co., Contractors.

Featherweight Slabs are speedily laid in place directly on the steel roof purlins.



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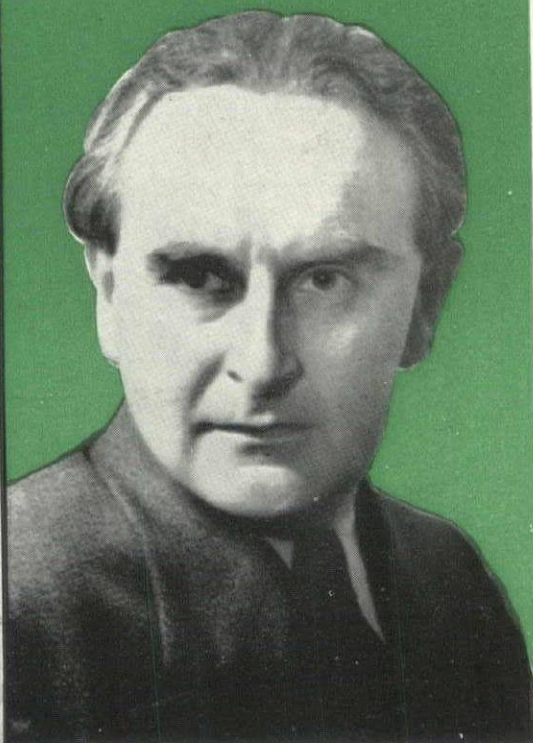
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... Richard J. Neutra

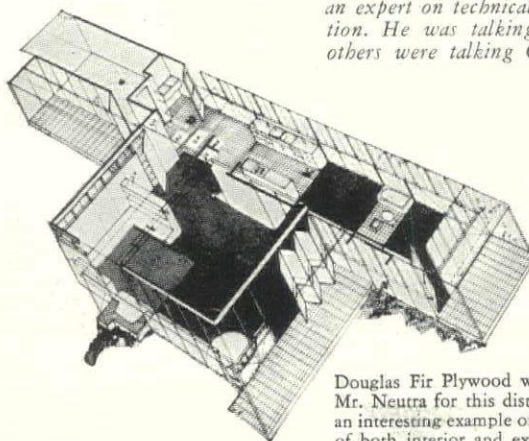


● Richard J. Neutra of Los Angeles ranks easily among the most important architects practicing in America today. Neutra-designed homes are outstanding examples of complete correlation of function, both internally—in the relation of parts and circulation between them—and externally, in relation to orientation and climate.

A graduate of the Polytechnical College, University of Vienna, Mr. Neutra has traveled throughout Europe and in Japan, China, Southern Asia and Northern Africa in connection with studies on city planning. He has done practical building work in the East, Middle West, Los Angeles, Berlin and Vienna. The unusual quality of his work has won him scores of awards among thousands of entries in numerous national competitions.

Of him, *Fortune Magazine* says, "Richard J. Neutra dawned in 1934 as the most potent new architectural influence in America. He is an expert on technical design and organization. He was talking prefabrication when others were talking Girder Gothic."

**DOUGLAS FIR
PLYWOOD**
Real Lumber
**MADE LARGER, LIGHTER
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Douglas Fir Plywood was specified by Mr. Neutra for this distinctive home—an interesting example of his correlation of both interior and exterior function.

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In the roofing industry we have a testing device known as the Weather-Ometer. With it, we are able to produce accelerated weather conditions—in our own laboratory. Weeks can equal years of actual exposure likely to be encountered by the roofs you specify. Now let's see how roofing asphalt containing *The Vital Element* stands up in the Weather-Ometer Test. Repeated cycles of three weather conditions constitute this test.



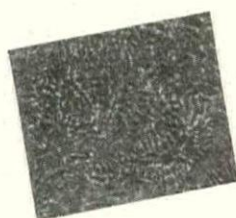
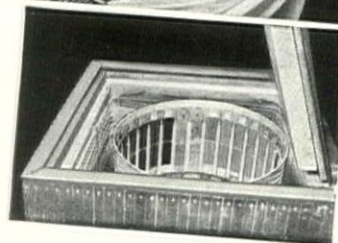
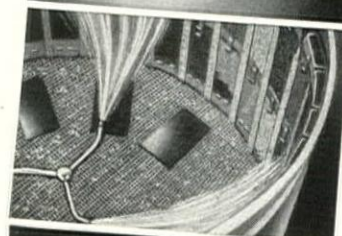
• **FIRST**, actinic or active rays of sunlight generated continuously by electric arcs inside the Weather-Ometer. Even under these destructive beams, roofing asphalts containing *The Vital Element* show a definite superiority over those made without it.



• **SECOND**, a drenching similar to a soaking, steady rainfall. Long after other asphalts have failed, those that contain *The Vital Element* still effectively shed water.



• **THIRD**, sub-zero temperatures. This completes a cycle of heat, rain and cold. Imagine a climate that offers such a supreme test for the roofs you specify.



And here's how roofing asphalt containing *The Vital Element* looks when taken from the Weather-Ometer. Even after sufficient cycles to cause many other roofing asphalts to fail, its surface is scarcely blemished. And, above all, it still sheds water! Clear evidence of the balanced weather-resisting properties of roofing asphalts containing *The Vital Element*.

When you specify roofings, be sure you specify BARBER GENASCO—the only roofings that offer you the added protection of genuine Trinidad Native Lake Asphalt. And when you have questions involving roofings and other asphalt uses, Barber will be very glad to co-operate with you in finding a correct, authentic answer.

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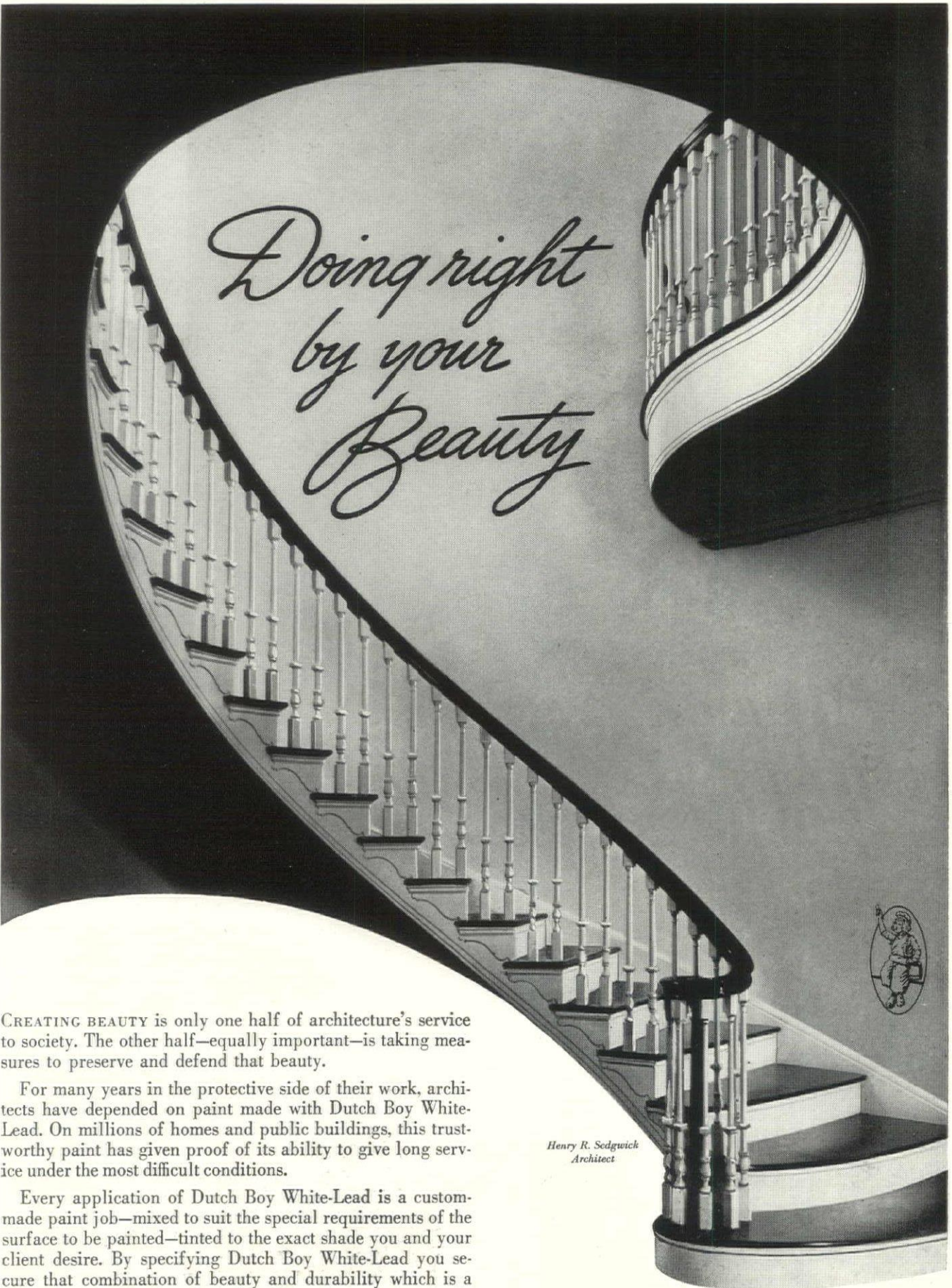


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CREATING BEAUTY is only one half of architecture's service to society. The other half—equally important—is taking measures to preserve and defend that beauty.

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*Henry R. Sedgwick
Architect*

Dutch Boy White Lead

BOOKS

The story of the first national housing program: PWA's 22,000 tenants, what they get, what they pay, and how they got what they are paying for.



TENEMENTS: NEW YORK



KNICKERBOCKER VILLAGE: NEW YORK



LAKEVIEW TERRACE: CLEVELAND

Ernest Graham

HOUSING COMES OF AGE, by Michael W. Straus and Talbot Wegg. Oxford University Press, New York, Inc., New York, N. Y. 259 pp., 17 illustrations. 5½ x 8½. \$2.75.

Less than five years ago it was possible to write and publish a book entitled "America Can't Have Housing," a pessimistic but entirely realistic reflection of an impossible situation: the richest country in the world with the poorest housing program. Today the record is 51 projects containing almost 22,000 dwelling units, 98 per cent of which are occupied, renting at an average of \$6.95 per room per month, including light, heat, hot water, cooking, and refrigeration.

"Housing Comes of Age" is an intimate, authoritative story of the 51 projects, telling the difficulties encountered, why the buildings were designed to last 60 years, what the politicians did when housing became a political issue. Not the least of its merits is that it fairly appraises the problems involved, sums up the achievements and shortcomings in terms of an existing situation and past attempts, and indulges in no easy half-true accusations or recriminations. The following is a fairly typical example of the general approach:

"It is not difficult to make a plausible case to condemn private builders for their indifference to the lot of slum dwellers. We have been prone in latter years to point an accusing finger at them and to lay all the blame at their door. Undoubtedly they must bear a large part of the burden of shame, but they alone are not guilty. And today the question of who was guilty for sins committed in the day of another generation seems dryly academic.

"What has been learned from half a century of housing reform are these things:

"Regulatory measures may possibly improve the standard of housing which is built, but they seriously curtail the volume, particularly that designed for low-income occupancy. Building codes become increasingly difficult to enforce in direct proportion to the quality of standards which they impose."

With similar continued emphasis on reality this book records the development of housing in the U. S., particularly that of the PWA Housing Division. To plan a city with a population of between 70,000 and 80,000 is a good sized job. In essence this was the problem faced by the Housing Division, yet in many ways made more complex by the fact that this was not one community but many, that the living habits of the group for which the housing was planned varied tremendously from one section of the country to another. With no like experience to draw on, satisfactory results could only be hard won, the lessons learned of inestimable help to responsible housing officials.

Information necessary to initiate a public housing project, a summary of housing legislation, and pertinent facts relating to the 51 projects undertaken by PWA are contained in separate appendices and are but part of this accumulation of new funds of housing technique.

The authors have actively participated in the development of the Government's housing program since its beginning in 1933, Mr. Straus as Director of Information in the PWA, Mr. Wegg as architect connected with the initiation of projects.



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NEW WORK AND
REMODELING

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OR INDUSTRIAL
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Statler Hotels select Micarta for table tops because of its beauty, economy, long life and because it is easy to clean and keep clean.

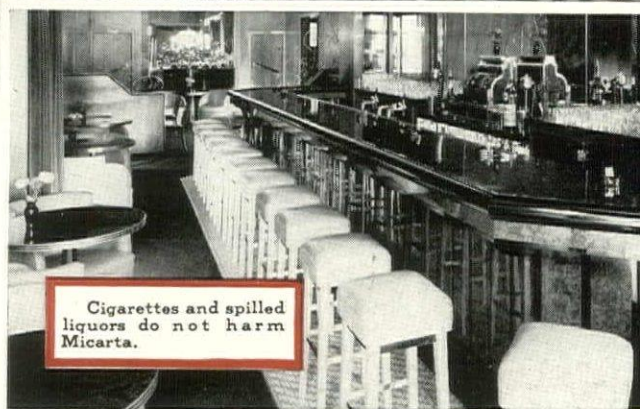
When you design a Hotel—First thought is to provide attractive surroundings for the hotel's guests—because that is what builds hotel business. With Micarta as a medium, an infinite variety of artistic designs is possible. For Micarta—a manufactured material—adapts itself to any pattern, any individual taste.

Or a Club—In club buildings, too, permanently pleasing atmosphere is achievable with Micarta—the conventional, the dignified or the ultra-modern—with greatest utility and low upkeep cost.

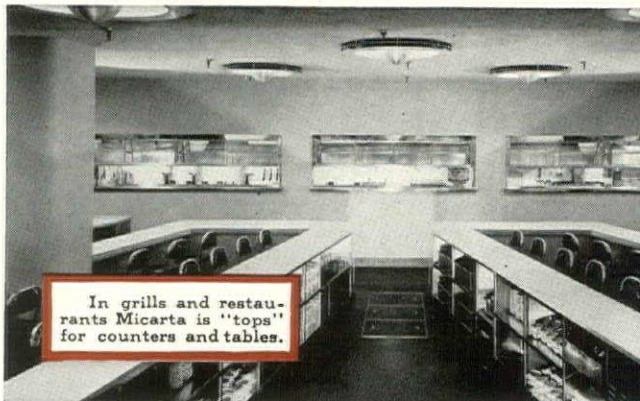
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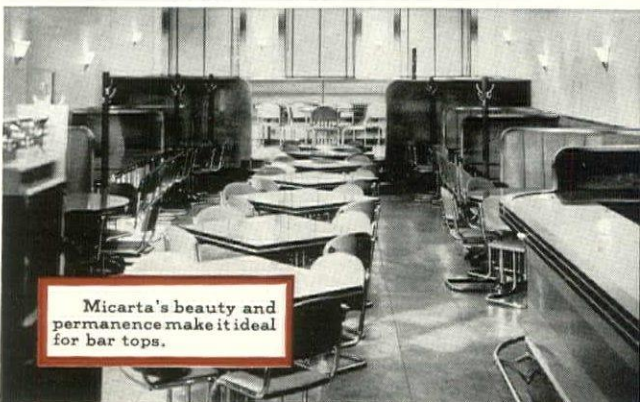
The ideal remodeling material—Micarta is easily applied over old walls, or used in panels for rehabilitation of the older buildings—giving them the brightness and sparkle of the new and modern. And its beauty lasts.



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Micarta's beauty and permanence make it ideal for bar tops.



Architects

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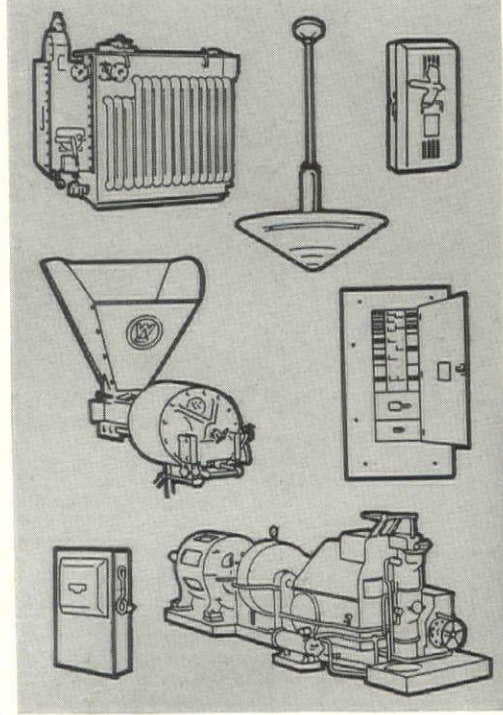


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Ask for your copy of the Architects' and Engineers' Data Book, containing helpful information on electrical products for buildings. See Catalog in Sweet's.

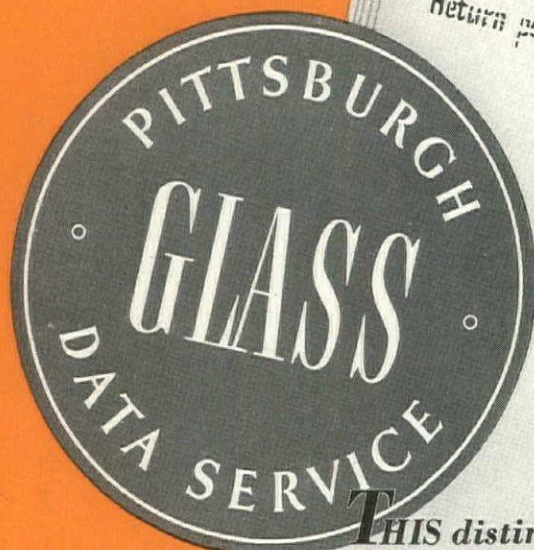
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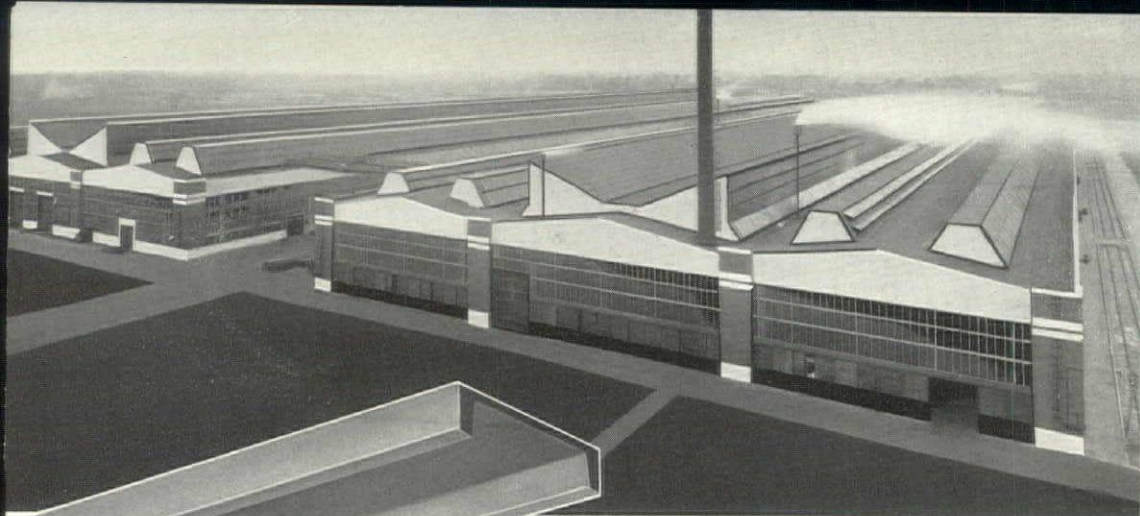
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Left
1924

Spring and Upset and Pressed Steel Buildings, Ford Motor Co., Rouge Plant—650,000 sq. ft. Truscon Cement Tile.

Below
Again—1938

Press Shop, Ford Motor Co., Rouge Plant, now under construction. 740,000 sq. ft. Truscon Cement Tile.

Truscon Cement Roofing Tile is used in 1924 on the above Ford Motor Co. job designed by Albert Kahn, Inc. In 1938, this dependable slab was again used on the Ford Press Shop shown at right.



7½ MILLION SQ. FT. TRUSCON Cement Roof Tile

TRUSCON ROOF TILE WAS USED
ON THE FOLLOWING INDUSTRIAL
INSTALLATIONS, DESIGNED BY
ALBERT KAHN, INC.

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- Ainsworth Mfg. Corp.
- American Blower Corp.
- Bower Roller Bearing Co.
- Budd Wheel Co.
- Burroughs Adding Machine Co.
- Cadillac Motor Car Div.
- Checker Cab Co.
- Chevrolet Motor Div.
- Chrysler Corp.
- Diesel Engine Div.
- Firestone Steel Products Co.
- Ford Motor Co.
- Graham-Paige Motors Corp.
- Hudson Motor Car Co.
- Long Mfg., Div. Borg-Warner
- Murray Corp. of America
- Nash-Kelvinator Corp.
- Oldsmobile Div.
- Packard Motor Car Co.
- Parke-Davis & Co.
- Peerless Cement Corp.
- Peninsular Stove Co.
- People's Outfitting Co.
- Pontiac Motor Div.

—has been used on various industrial jobs designed by Albert Kahn, Inc. Some of the more nationally known of these installations are listed opposite.

The two Ford projects pictured above were selected for this advertisement because they are two of the largest cement roofing tile contracts ever let to one contractor. They are representative of the practice of many of the other industries (listed opposite) who first used Truscon Cement Roof Tile construction years ago, and have used it again and again in recent years on their new buildings.

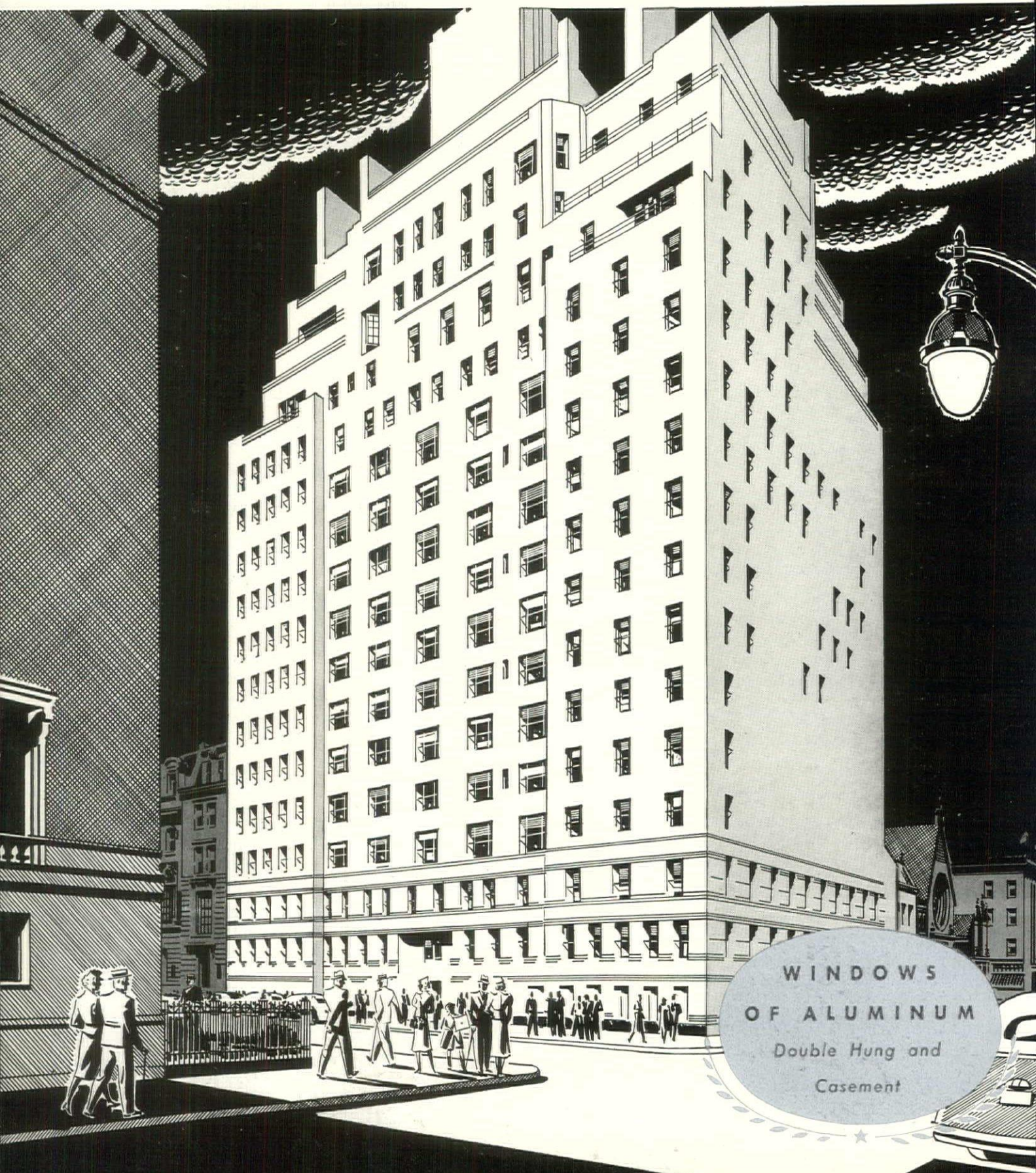
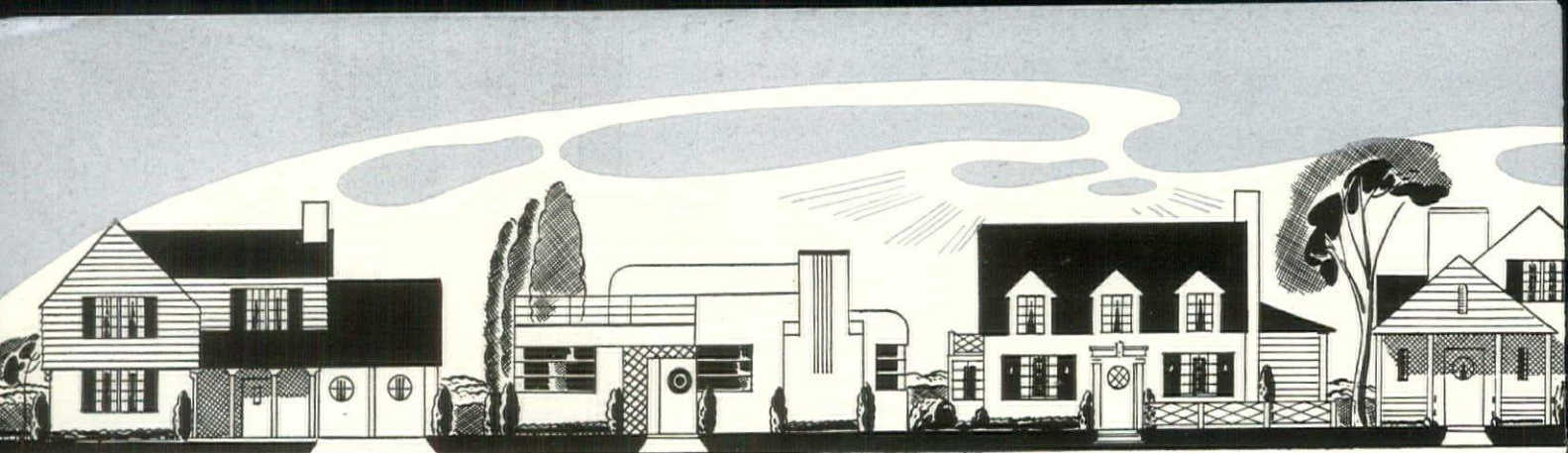
It is this example of repeat installations of the same product and erection service over a long period of years that testifies to the durability, the economy, and the serviceability of this type of roof construction.

CEMENT TILE DIVISION
THE TRUSCON LABORATORIES
DETROIT, MICHIGAN, U. S. A.

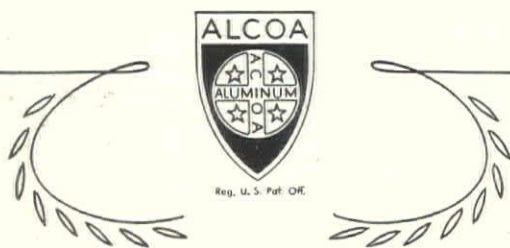


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WINDOWS
OF ALUMINUM
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WHAT HAPPENS WHEN YOU RECOMMEND

Aluminum Windows

Your clients will have occasion to think kindly of you many times in the years to come. Aluminum windows retain their youthful habit of opening and closing easily. There's no warping or swelling to cause binding during damp weather; no rattling looseness during dry. No rusting or rotting to require expensive replacement of parts.

In the spring, when it's painting time for neighbors, these property owners will be spared the expense of painting windows. Aluminum resists corrosion. Never needs a protective coating of paint.

Aluminum windows are light in weight — easy operating. The extruded shapes used in their fabrication are strong. All parts are narrow, giving maximum glass area.

The first cost of Aluminum windows is surprisingly low. And that is the complete cost, for there are no extras to add for assembling knocked-down parts, hardware, weatherstripping, painting, fitting and refitting.

The book, "Windows of Alcoa Aluminum," lists the companies who manufacture Aluminum windows, describes their windows, outlines the benefits obtained. Thousands of people have asked for, and have received, copies of this book. We'll gladly mail a copy to you. Aluminum Company of America, 2166 Gulf Bldg., Pittsburgh, Pa.



ALCOA · ALUMINUM

LETTERS

Competitions

L. Andrew Reinhard's letter (Arch. Forum, July, '38, p. 30) ably voiced the opinion of a part of the architectural profession when he stated:

1. That competitions represent a great and unjustifiable cost to the profession, estimated in this case as high as a quarter of a million dollars,
2. That while young and unknown architects are given a chance to make their reputation, the odds are not much better than those of a sweepstakes,
3. That competitions are responsible for lowering wages in architects' offices,
4. That various irregular practices such as the furnishing of free competitive sketches to prospective clients are evils which may be directly traced to the competition system.

The Forum Editors print herewith first reactions. A complete digest of opinion will be published in the September issue.

Forum:

... Competitions do present a high cost to the profession. On the other hand, they are highly educational and in many cases of great benefit to a large proportion of the profession, especially those who may have "stopped being educated" since they left college. . . .

The competition system may give rise to some evils, such as the presentation of free competitive sketches, but I do not believe this can be traced to the competition system. I think many architects who complain about competition systems are the ones who would be most liable to make free competitive sketches. . . .

ROYAL BARRY WILLS

Boston, Mass.

Forum:

... Mr. Reinhard's points are those usually made by the sincere and convinced opponents of competitions, but to me they are inconclusive and miss the big point which is the intellectual and imaginative uplift—something we sadly lack these days and worth a considerable sacrifice. As one who has never won yet in about four tries I should be able to speak without favorable prejudice. . . .

It is the casual and half-hearted attitude of the A.I.A. and many established practitioners to properly conducted competitions which is largely responsible for the improper ones and for the expectation on the part of many laymen that free competition designs may properly be demanded of architects. The experience of the R.I.B.A. has often been cited, but the evidence of the good effects of widespread competitions in England is so overwhelming that one cannot laugh it off.

FREDERICK J. WOODBRIDGE

New York, N. Y.

Forum:

... The weakest part of a competition is the judging. Busy architects will not take sufficient time to judge carefully and it is notorious that the very best architects, when acting together on a jury, overlook or condone violations of the conditions of the program. There should be upon every jury a paid architect who will give his time to weeding out contestants whose drawings do not strictly comply with the rules. Failure to do this has resulted in breaking down the morale of competitions by handicapping those who stick to the rules.

W. R. GREELEY

Boston, Mass.

Forum:

... I think that the blind competition is a very poor way to select not only an architect but a personality with whom the client, in this case the College, must work closely and harmoniously for a year or more. The client accepts a gamble as truly as the contestants engage in one. This is emphasized by your own suggestion that two or more equally competent juries would probably pick different winners and give quite different premiations. My experience is that a jury is often dominated by some emphatic member expressing a preconceived emphasis on some particular solution in design or parti. . . .

ALFRED BUSSELLE

New York, N. Y.

Forum:

... Mr. Reinhard's statements seem to be bent upon blaming all the faults of the architectural profession on the competition system. Surely no thinking person could be so naive as to think that the running of one or two legal competitions per year can undermine the architectural profession. If this is true then the profession is so wobbly that it should be undermined—or changed so that it can cope with present conditions.

All architects should have learned in school days that the profession is one directly and absolutely dependent upon the governing political, social, and economic orders. If we want to know what is wrong let us look into these institutions—not blindly lay the blame on the competition system. That is very little more than childish.

HORACE WILLIAM HARTMAN

Detroit, Mich.

Forum:

... I have served on innumerable juries where 200 to 300 drawings have been submitted. The process of elimination if

fairly done requires the most unusual type of mentality (please don't think that I have it). It is the difficulty of finding men who have this ability that is the stumbling block in the way of more open competitions. On the other hand there are many men, in fact most good designers, who can render a fair judgment in a group of five to eight designs, and this brings me to the closed competition with its attendant evils which, as I get older, tend to loom less large in my estimation. This is quite natural. The two-stage competition would seem to be the answer, but actually in operation it has not been very successful. . . .

W. POPE BARNEY

Philadelphia, Pa.

Forum:

... I have entered competitions and do feel that preparing competition plans is expensive and not worth the candle. I have both won and lost competitions and from my own experience believe that it is entirely the wrong way to retain professional service. In the last analysis, buildings are not built of paper architecture, and as the architect has only service to offer it seems to me that the important element in the retention of an architect is the type of service he can offer. This of course varies in the profession just as it does in the medical and legal professions. I think a man should be selected for his personal ability to serve. . . .

DOUGLAS ORR

New Haven, Conn.

Forum:

... An open competition if properly conducted and ably judged, will serve the cause of good architecture more than an amount of effort spent by an individual or a group of appointed architects—no matter how well established they may be.

Ideas and thoughts have no boundaries; they may strike the least known or the most famous. Open competitions, as the words imply, are free and open to all qualified architects—those who disagree with the idea need not compete. . . .

JOSHUA D. LOWENFISH

New York, N. Y.

Forum:

... It is our belief that a jury can properly function only if all the members are paid for all the time they will have to spend to analyze the requirements of the program, actual conditions at the site for a case similar to the Wheaton College competition and thoroughly examine each solution submitted. It seems impossible.

(Continued on page 64)

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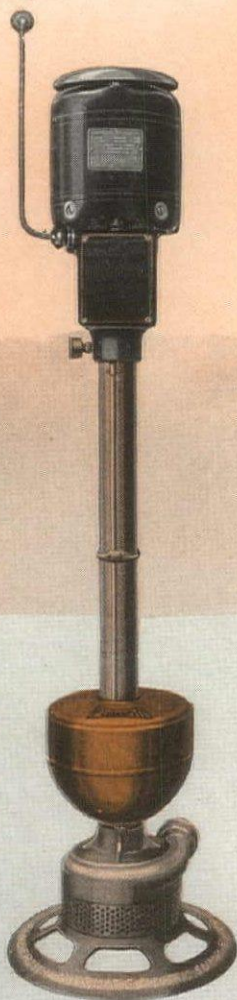
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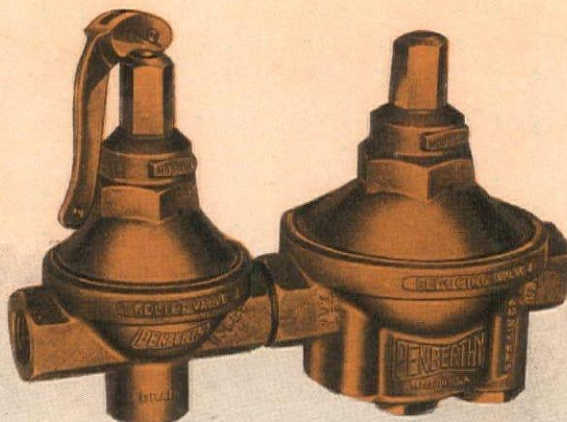
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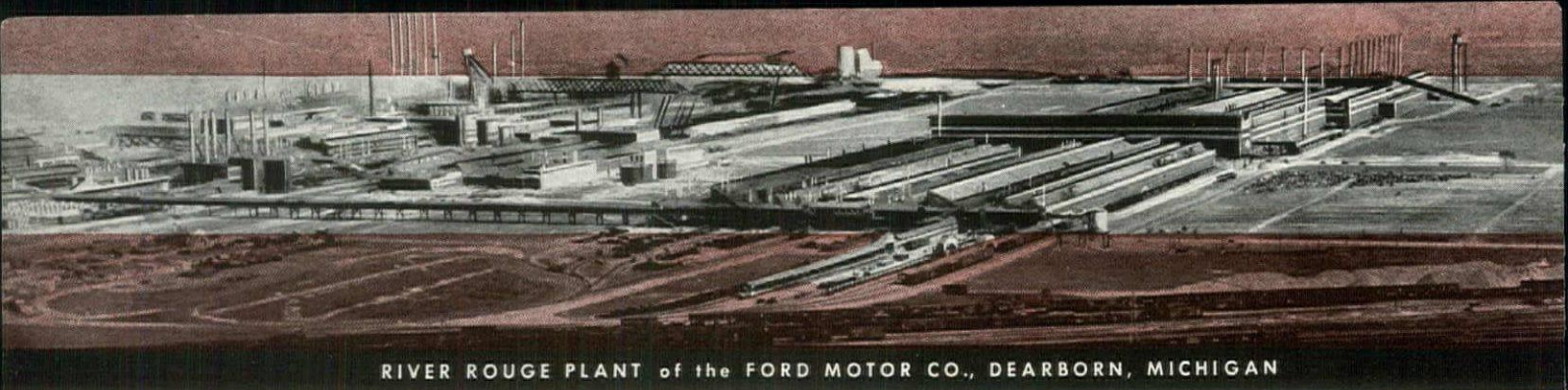
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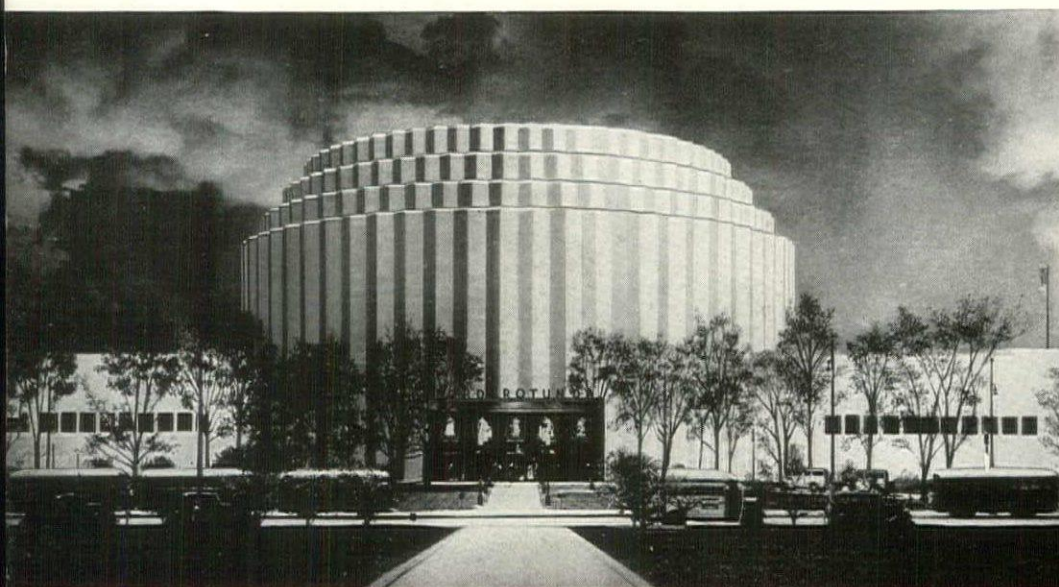
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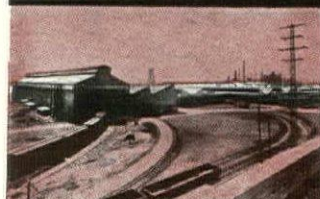
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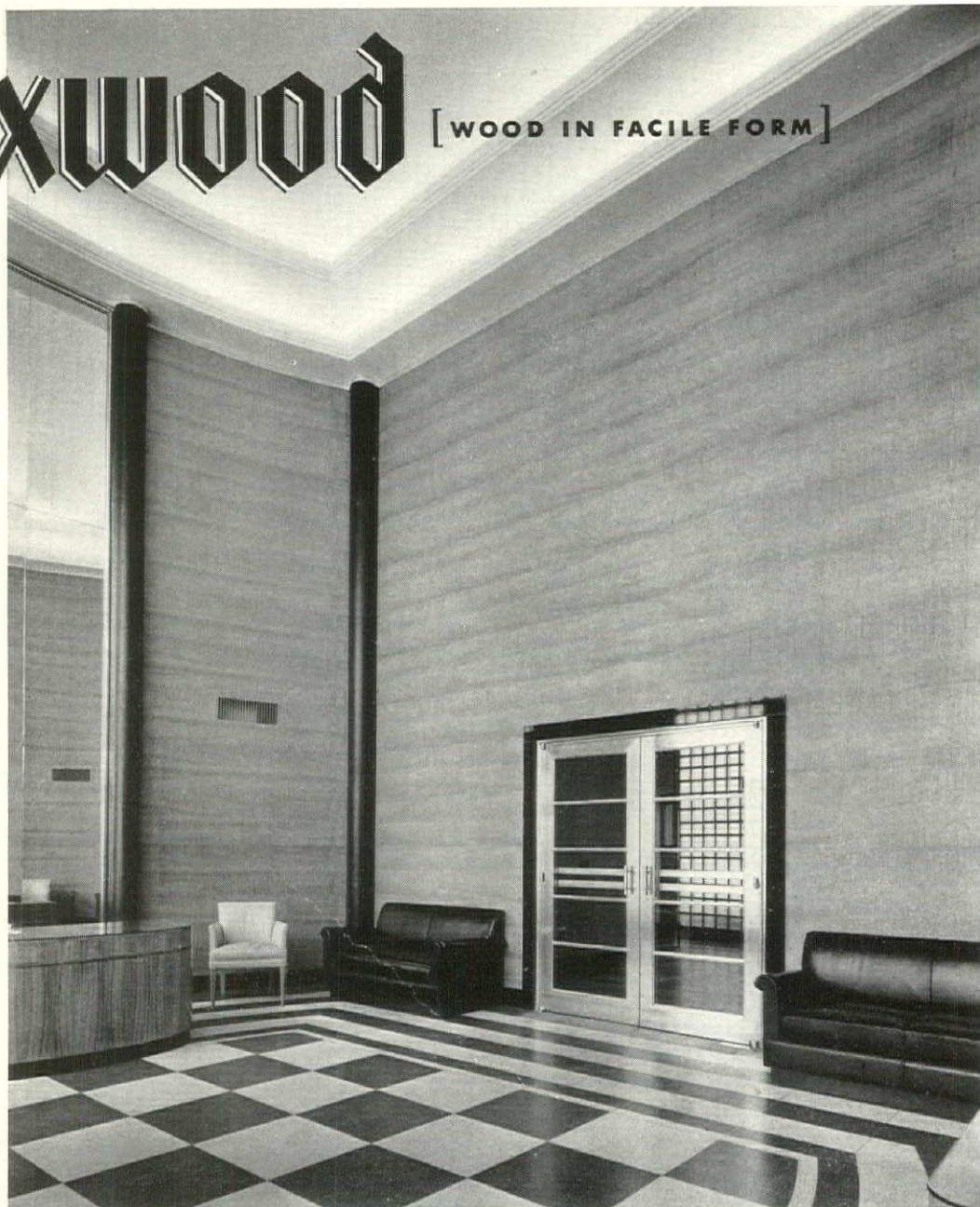


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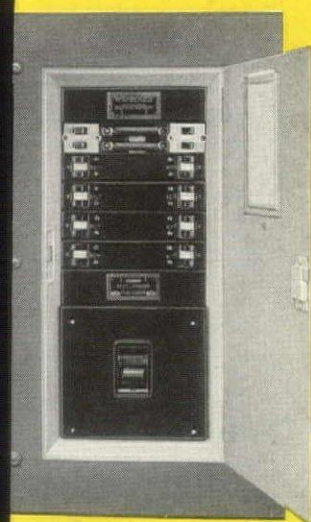
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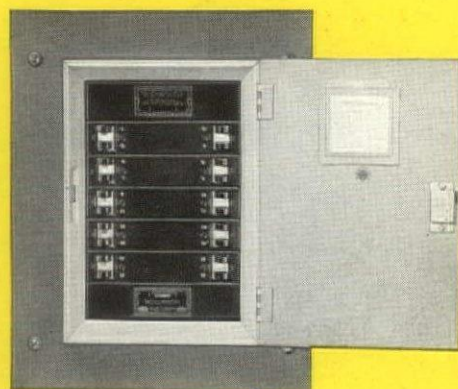
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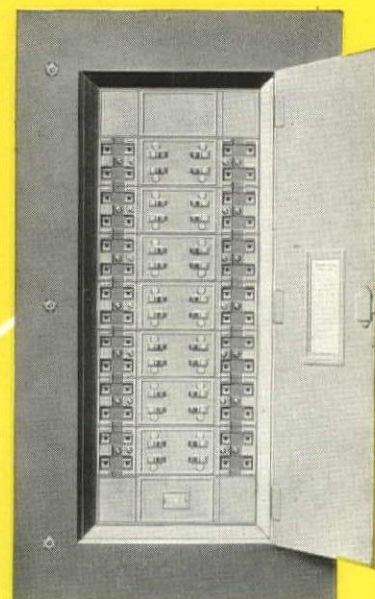
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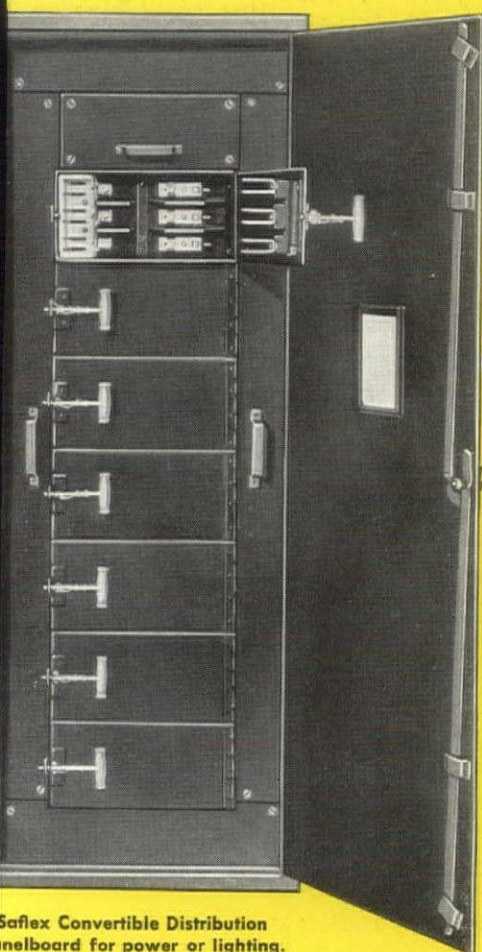
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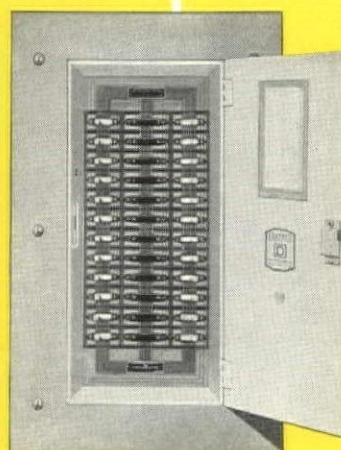
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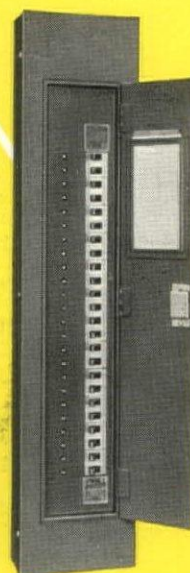
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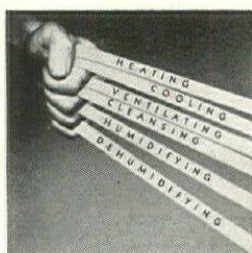
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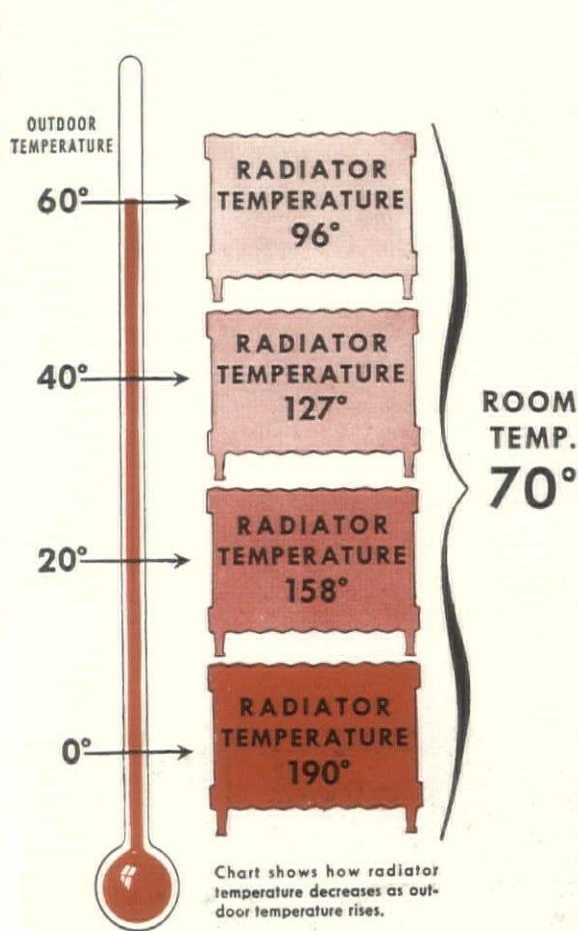
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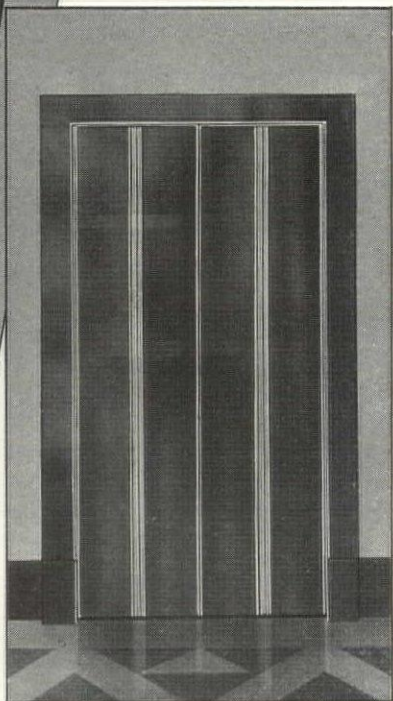
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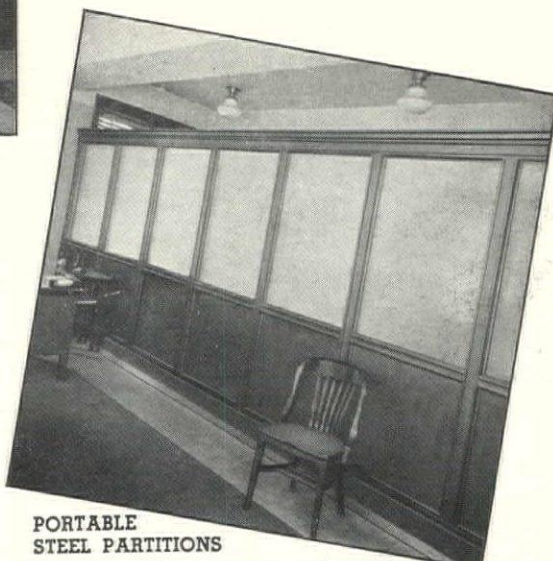
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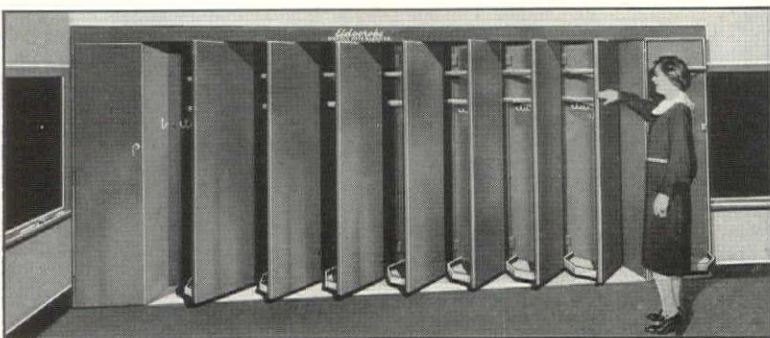
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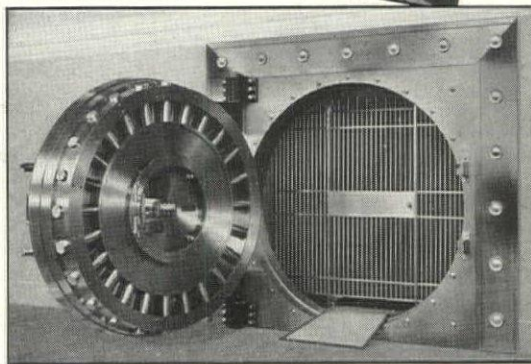
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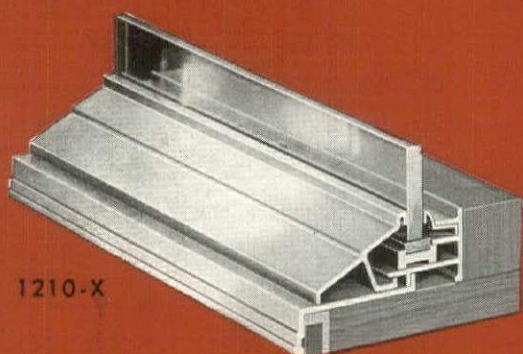
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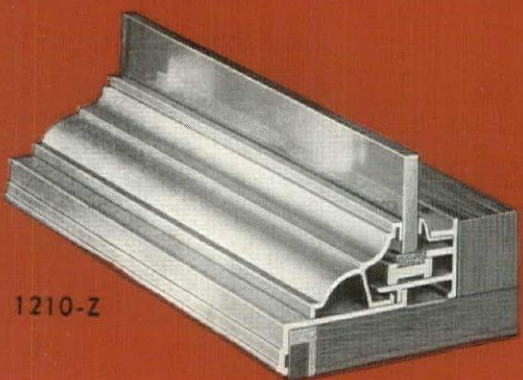
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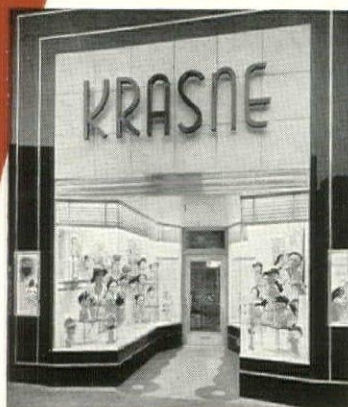
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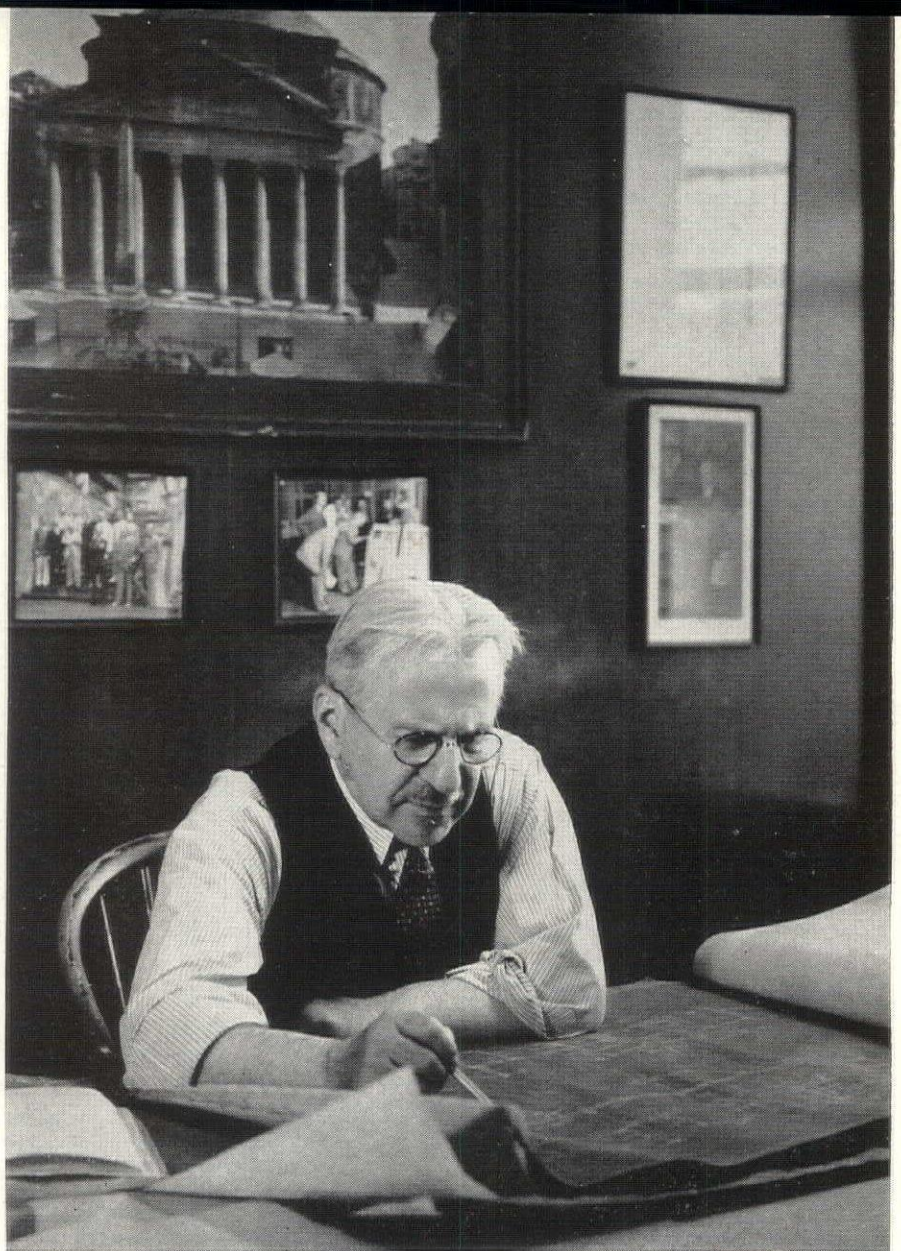
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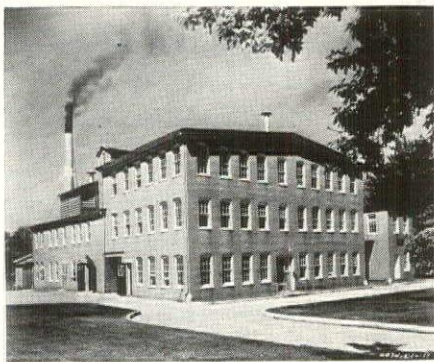


Hedrich-Blessing

ALBERT KAHN has written his story in glass and steel in three dimensions around the world. Measured by sheer bulk, this 800,000,000 odd dollars worth of building is impressive. Equally imposing are the names of clients like Ford, Republic Steel, General Motors, and Chrysler. If the story is glamorous, it is also significant. It means that Albert Kahn has established the architect as an important factor in industrial building. It also means that Albert Kahn, perhaps more than any other single individual, has helped create a new industrial architecture.

To reduce this accomplishment to the basis of a formula would be to miss the essential genius of the man. Yet there are certain items to be noted. There is for instance some truth in the statement that Albert Kahn is Albert Kahn, Inc.—and vice versa. He has developed the organization of an architectural office to a pitch of business efficiency seldom excelled even by his clients. He has drilled into his organization the dictum that the client's analysis of the problem is the first move toward its solution. He has systematically endeavored to translate the client's purpose into every successive step in the creation of the building.

This attitude of the business architect is one reason why last year Kahn's volume of work reached total of 19 per cent of all architect-designed U. S. industrial building. But a more important reason is that



The early nineteenth century factory which was standard during the period; its chief disadvantages were short spans and bad illumination. It went out of existence just about the time the Kahn office began its practice. The first modern construction to replace it was reenforced concrete, and later steel. Examples of the firm's early work are shown below.



1908



1910

Manning Bros.

the firm's span of existence covers precisely those four decades in which the factory changed from a cumbersome mill to a perfectly functioning organism in steel, concrete and glass.

In considering this last fact it is as misleading to overlook, as to overrate, the obvious. And obvious it is that here was an almost perfect combination of the time and the place and the men. In 1903 Detroit was predestined to spawn factories. That it was incidentally to produce a new architecture may also have been inevitable, but the process was hastened by the men in the combination—Albert Kahn and his clients. To emphasize the clients is not to minimize the architect; he consistently puts them first.

Thus all that follows must be told against the background of the men who created the automotive industry. Henry Ford is their epitome. They possessed extraordinary vision to foresee new possibilities, they were willing to back their hunches with perseverance as well as money. When they came to the problem of housing the new industry they made great demands upon architecture, literally, if unconsciously, forced revolution in design, innovations in engineering, new techniques in construction. They were no less exacting on the architect. They wanted to deal with a businessman, they were profoundly suspicious of artists; they wanted fast work, no mistakes and flexibility to provide for inevitable changes in production. To all this they added a primary requirement of economy in first cost and maintenance. That the thoroughly materialistic demands have resulted in a series of some of the finest modern buildings, esthetically as well as otherwise, is Albert Kahn's contribution.

One could argue that industry would have found its new architecture without Kahn, or conversely, that Kahn's career would have flourished without this particular inspiration. All that is beside the point. It happened the way it did. About thirty-five years ago a wealthy Detroit businessman Henry B. Joy, walked into the office of his architect and asked him to design a factory. The architect had never designed a factory before, but said he would try. The factory was for the infant Packard Motor Car Company; the architect was Albert Kahn, age 34, with twenty-two years of experience behind him, seven of which had been in his own office.

The pattern of the Kahn career parallels that of many of his clients. The child brought to America by parents in search of the more abundant life; poverty and the needs of a large family take him out of school at the age of eleven; he gets one job by day and another by night. One can also add those sentimental embellishments which so enrich the story of the self-made man. There was, for instance, the architect who charitably fired his office boy because he showed no artistic promise. Later, the flattering offer of a job with Louis Sullivan to take Frank Lloyd Wright's place, refused because he was afraid he couldn't hold it and a family of ten was dependent on his earnings. Or the winning of a traveling fellowship which sent him to Europe, where he was so bewildered by the profusion of masterpieces that he didn't know what to do until Henry Bacon took him in hand. Such tales, to be sure, are interesting and revealing. But the important part of the story is that here was an energetic and extremely ambitious personality, strongly conditioned by a bitter struggle for existence which began much too early in life. His driving vitality kept him afloat where so many were



1912



1914

Manning Bros.



1915



1917

under; it was the struggle, however, which ultimately determined the direction to be followed by the firm.

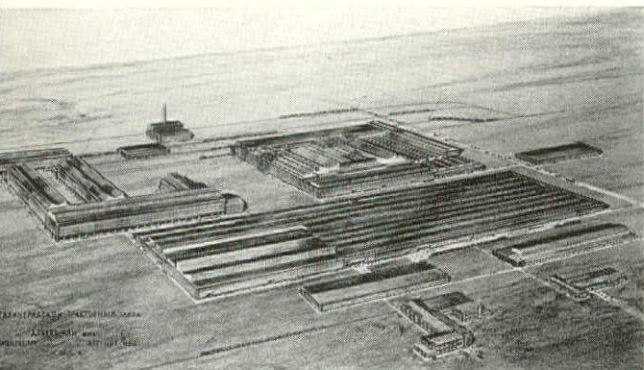
To the architect of the early 1900's, trained to think of himself as a kind of high priest of art, the designing of a factory was something beneath his dignity. But Kahn's rigorous training had developed in him a more realistic approach, and when he was given his first factory job he felt no such scruples. Today he recalls the situation at that time with a certain understandable satisfaction: "When I began, the real architects would design only museums, cathedrals, capitols, monuments. The office boy was considered good enough to do factory buildings. I'm still that office boy designing factories, I have no dignity to be impaired."

"That office boy" has been Packard's architect for 35 years, Ford's for 30, Chrysler's since the firm was incorporated in 1926, General Motor's on 127 important structures. One of his favorite remarks, invariably shocking to his colleagues, is "Architecture is 90 per cent business and 10 per cent art." In his rare weak moments he may reduce the figures to 85 and 15.

It was characteristic of Kahn's restless and inquiring mind that his first factory, the Packard building, did not follow the mill construction which was standard at the time. He used a reinforced concrete frame and steel sash, the latter a novel importation from England. It is hard today to realize what courage it took to design in concrete; handbooks were not available, and formulas were virtually non-existent. The Packard job was the first reinforced concrete factory in America, and for the first time an industrialist got a plant in which fenestration was reasonably adequate and production departments were coordinated with an eye to efficiency.

Following the successful completion of this building, others began to come. The automotive industry, with its new mass production techniques, had an inevitable effect on other industries, and Kahn's reputation as the designer of a new type of factory quickly spread. Other commissions included plants for food, textiles, clothing, business machines, cement, and chemicals. By the time America entered the war the office was large enough to take over all of the government's aviation work. In 1929 its output was considerably more than a million dollars worth of work per week.

It was in 1928, however, that the most extraordinary commission ever given an architect came in the door unannounced. In that year a group



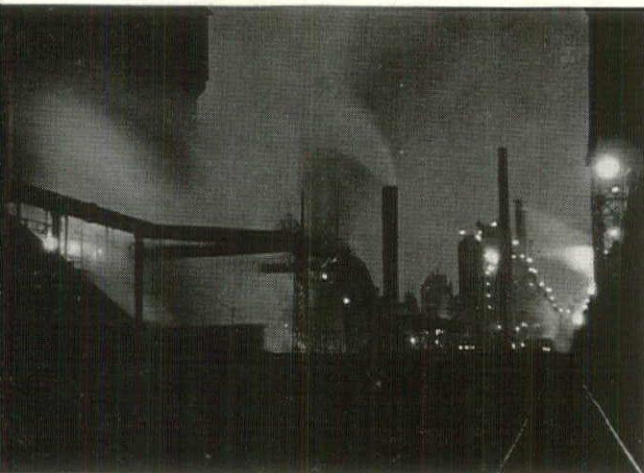
STALINGRAD U.S.S.R.

Jeffery White



CHELYABINSK U.S.S.R.

Sovfoto



KUZNETSK U.S.S.R.

Sovfoto

of engineers from the USSR came to the Kahn office with an order for a \$40,000,000 tractor plant, and an outline of a program for an additional two billion dollars worth of buildings. About a dozen of these factories were done in Detroit; the rest were handled in a special office with 1,500 draftsmen in Moscow.

Probably no organization has ever had a more severe test of its flexibility, speed, and competence. Not only did the plants have to be designed, but machinery had to be selected and ordered, process layouts had to be prepared, and the very tools needed to build the plants had to be ordered here and shipped over. The office in Moscow consisted of a large percentage of Soviet draftsmen who had apparently never seen a pencil before, and the Kahn representatives not only had to run it by day, but hold classes at night. Factories such as the great Stalingrad tractor plant or the Nijhi-Tagil freight car factory were erected in deserts or virgin forests, and the labor was chiefly raw peasants who were unfamiliar with any machine more complicated than a shovel. For almost three years the Kahn technicians labored with their untrained human material, an impossibly overloaded transportation system, and inaccessible building sites. Hundreds of plants were designed and equipped.

The Soviet work was, of course, unique in any architect's experience, and it points up the amazing capabilities of the Kahn organization. Because such a firm of industrial architects must rely on a large number of small plants rather than an occasional large one, the prime need of such an organization is flexibility. It must be able to turn out a hundred small jobs as satisfactorily as a half dozen large ones. And because mistakes show up on small work, it cannot afford to make them. Due to the requirements of speed, it must have all its engineers and other specialists in the office; outside consultants, save in rare instances, are not feasible. If Albert Kahn had done nothing more than develop his organization to its present pitch his accomplishment would have been considerable.

In addition to factories, the firm has done a large amount of non-industrial work, hospitals—where they are rated as specialists—schools, banks, clubs, hotels, theaters, and office buildings. This imposed the further requirement of versatility as well as flexibility. The principals must be able to go from a power house to a hospital to a country club, and still know what they are doing. This work is not illustrated here.

But it might be of some interest to note that, unlike the factories, it exhibits the eclectic tendencies which have long been characteristic of American architecture. The problem of the non-industrial building, obviously, is far less clear cut than that presented by the factory, and there has been the temptation to lean on so-called tradition. Thus Kahn will speak of "the re-use of well-tried forms" or state that "evolution is preferable to revolution." Coming from one who has played no insignificant part in bringing about an architectural revolution, such statements present a striking contradiction. Perhaps the best explanation is that Kahn, precisely as his contemporaries in 1900, still divides building into factories and architecture.

But designing shelter for mass production industry nonetheless remains his favorite occupation, and the story of this new industrial architecture is still largely the story of Albert Kahn.

ORGANIZATION

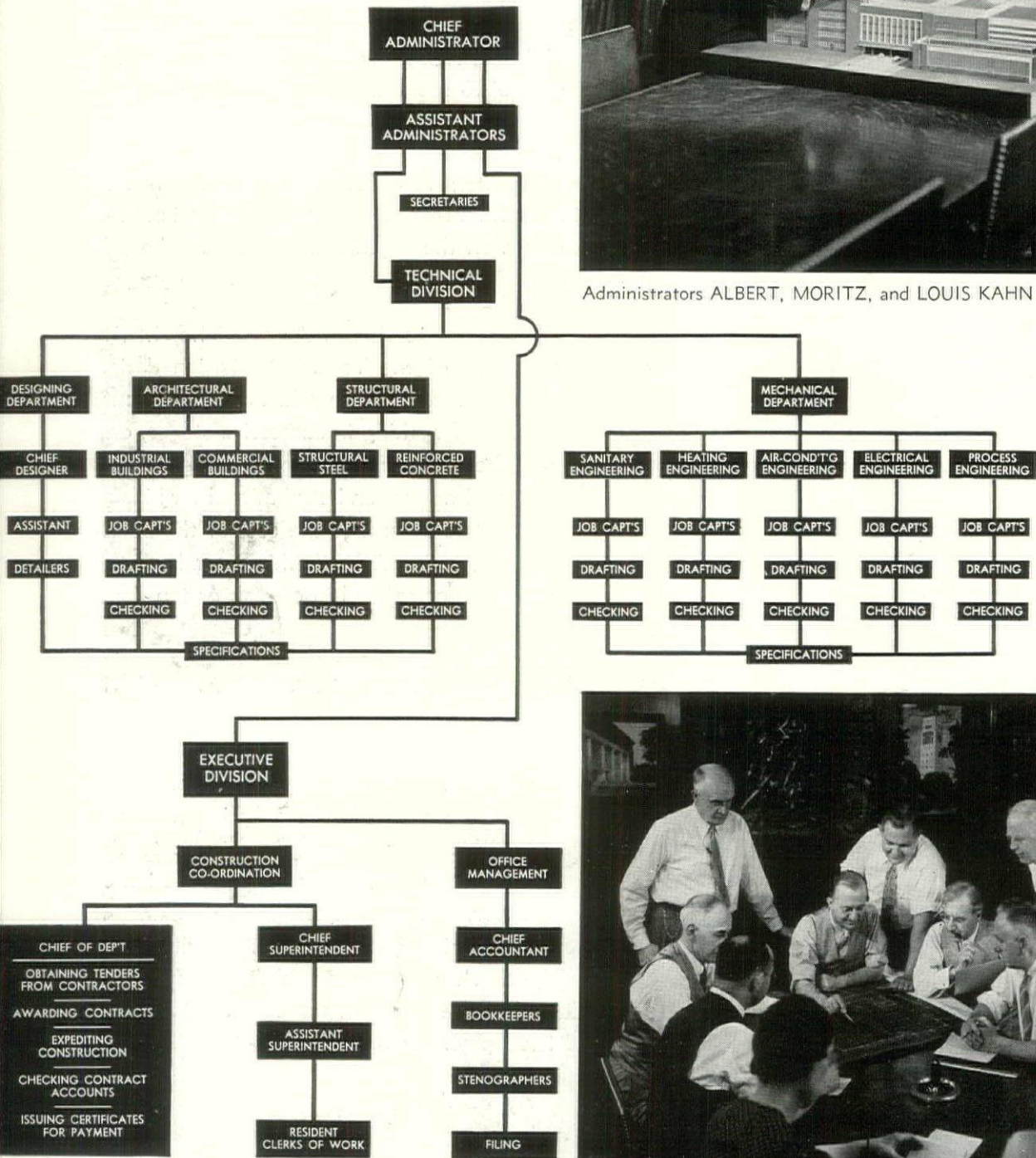
In normal times the firm of Albert Kahn, Inc. employs about 400 men and women; among them some 40 secretaries, stenographers, typists and file clerks; about 15 accountants; 80-90 mechanical and electrical engineers; 40-50 field superintendents; some 30 specification writers, estimators, expeditors, etc.; 175 architectural designers and draftsmen. The manner in which its several departments function, and their interrelationship, is shown on the organization chart on the following page.

The outstanding fact about the organization of Albert Kahn, Inc. is its completeness. The departments of the Technical Division design the entire construction, including mechanical work. All departments start work simultaneously instead of working in successive stages, and this, in addition to speeding-up the work of making the drawings, means that plans and specifications for all trades can be submitted for bids at one time, thus enabling the client to determine the cost of the building in its entirety before starting to build. With this procedure, the drawings for a large factory can be completed in a week or ten days' time.

Quite as important as the technical work is that of the Executive Division. This division is responsible for the management of the job in the course of construction. One department obtains competitive bids from contractors, submits them to the client. When the contractor has been selected, another department drafts contracts for submission to the client's attorney for approval. This department also attends to the various types of liability and fire insurance. The principal function of the Executive Division is, however, to supervise the work in course of construction; to expedite those parts of the work which fall behind the construction schedule; to check the contractor's charges for additions, his credits for deductions; and to check the contractor's requisitions for payments and issue payment certificates.

Inasmuch as twenty or thirty buildings may be going through the organization at one time it is apparent that a standardized procedure must be strictly followed, so that the work in its various stages can flow through the office as smoothly as a product flows through a well-designed factory. Not only have Albert Kahn, Inc. brought architecture to industry, they have also brought industry to architecture.

ORGANIZATION



Administrators ALBERT, MORITZ, and LOUIS KAHN

Hedrich-Blessing Ph



LOUIS KAHN, chief executive, conducts weekly conference of department heads



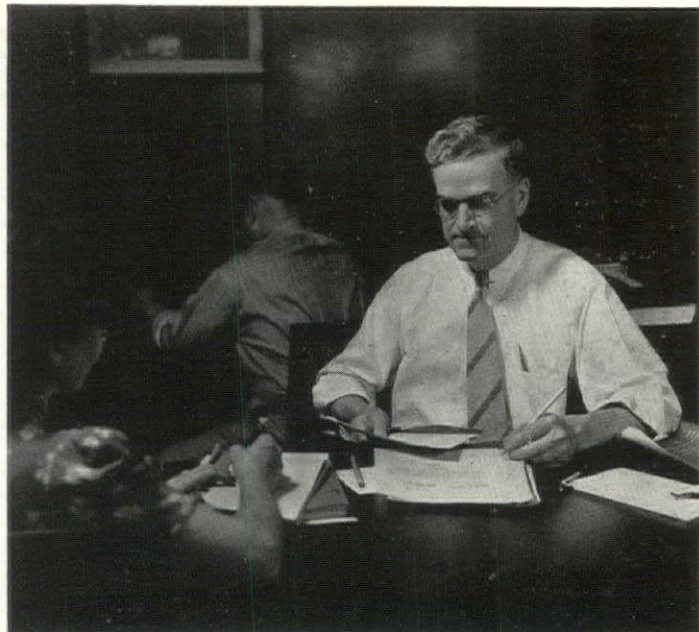
BUNCE, chief architect, HUBEL, chief designer, ALBERT KAHN



BOOMHOWER, SAULSON, chief mechanical and sanitary engineers



HOYT, chief civil engineer, and MATTE, chief structural engineer



CANFIELD, job coordinator



LEWIS, chief specification writer



FETTES, chief superintendent, and MARSTON, chief expeditor



IT is doubtful if there has ever been another firm of architects which could open an atlas and spot buildings of their design on all five continents. Certainly there is none which can show an almost solid series of constructions girdling the entire northern hemisphere. Kahn industrial buildings, not including their general work, are located in 134 U.S. cities. Moving due east one finds their plants in England and Scotland; Oslo and Stockholm have a warehouse and grain elevators; in France there are automobile assembly plants and a caterpillar tank factory;



farther on there are the scores in European Russia, more in Siberia, and one, at Kolymsk, almost on the borders of the Far Eastern Republic. At Nanking there is—or was—an office building for which they were consulting architects, and in Yokohama, a Ford assembly plant. The types are as varied as industry itself: there are airplane plants, warehouses, docks, foundries, creameries, filtration plants, rubber factories, steel plants, silos, distilleries, smelters, textile mills—the list could be extended almost indefinitely.

WHAT THE MANUFACTURER WANTS FROM HIS ARCHITECT

Manufacturers about to build too often approach the architect with the mistaken notion that his only function is the preparation of construction drawings. Actually, of course, the service rendered by the architect should be much more comprehensive. Albert Kahn, Inc. believes that the proper functions of the industrial architect fall under two main headings, lists their more important subdivisions as in the outline below.

1. FUNCTIONAL DESIGN. The purpose of a factory building is to facilitate production. It should house the manufacturing equipment in such a manner as to enable that equipment to function efficiently. To this end the general scheme is all important, and should provide:

STRAIGHT-LINE PRODUCTION	Various departments for successive operations located to effect a simple and direct production flow, so that transportation and handling of materials will be cut to a minimum. There should be no crossing or retracing of the production line with consequent congestion.
FLEXIBILITY	A departmental layout sufficiently elastic to permit rearrangement in accordance with changes in production methods, or expansion of departments as production expands without disorganizing the existing scheme.
GENEROUS COLUMN SPACING	Interior columns spaced as far apart as economically possible, to allow for free location of machines and cause the least interference with the transportation of materials.
SUITABLE FLOORS AND CEILINGS	Clear ceiling heights adequate for the work performed, and floors strong enough to meet all loading requirements.
PROPERLY LOCATED UTILITIES	Elevators, stairs, locker and toilet rooms located where they best serve the purpose and do not interfere with the flow of production.
GOOD LIGHTING	Adequate natural and artificial illumination, properly distributed and of sufficient intensity for the tasks performed. Absence of disturbing glare.
ADEQUATE VENTILATION	Air movement sufficient for human needs, and special equipment to meet any problems created by the manufacturing process.
LOW FIRST- AND UPKEEP-COSTS	Economies resulting from skillful design and the efficient use of materials, reducing both initial cost and maintenance expense to the minimum.

2. BUSINESS-LIKE EXECUTION. Just as important as good design is the provision of adequate service. Especially important are the following service items:

ACCURATE PRELIMINARY ESTIMATES	Before the work is begun, a preliminary cost estimate sufficiently accurate that there will be no overrunning of the manufacturer's budget.
SPEED	Because no manufacturer decides to build until the need for new production facilities is apparent and pressing, the work in its entirety—from preliminary design to final completion—must be carried out with utmost dispatch.
COMPLETE AND ACCURATE DRAWINGS	Construction drawings and specifications prepared in such detail and with sufficient care to provide a proper basis for competitive bidding by responsible contractors and to eliminate or minimize extras.
A GOOD CONTRACTOR	The Architect must furnish helpful and qualified advice on the selection of a contractor able to do the work expeditiously and well.
ADEQUATE SUPERVISION	All branches of the work must be carefully supervised, during construction, in such a way as to expedite the work as much as possible.

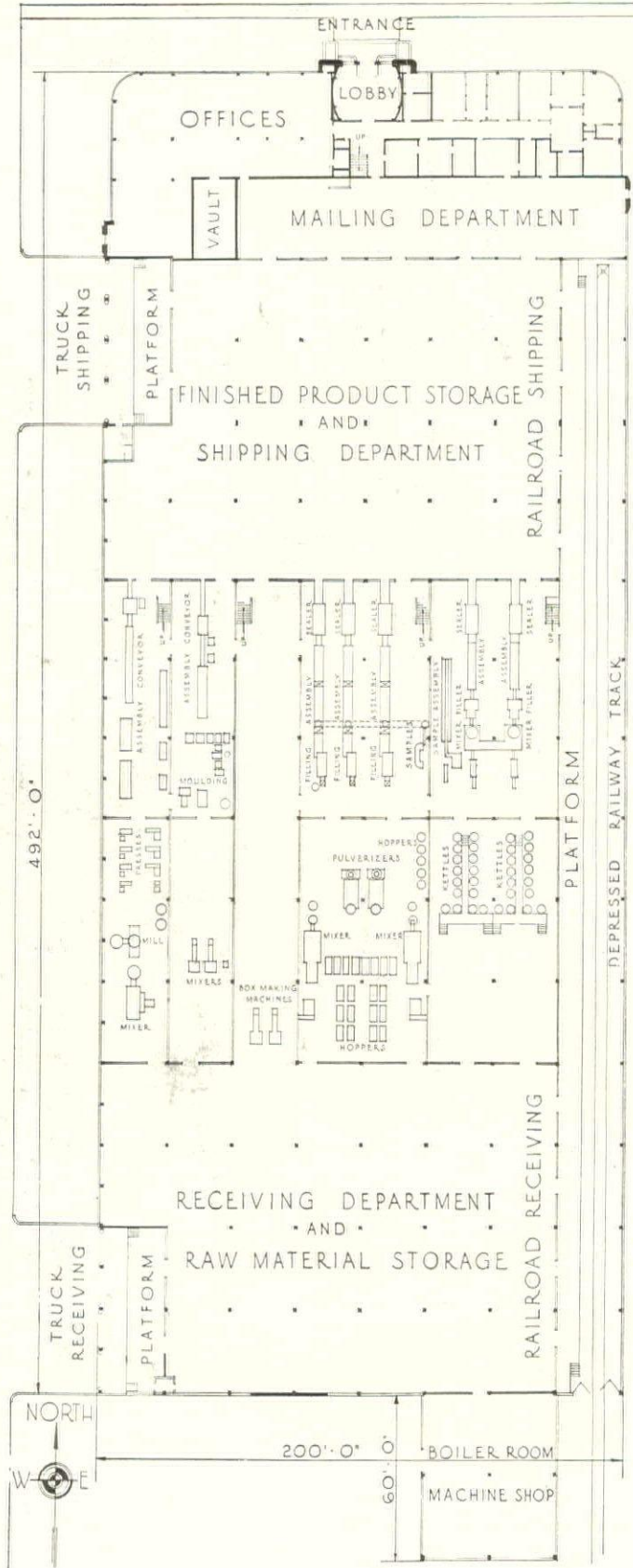
Thus factory design imposes a severe responsibility on the architect. The successful completion of the project depends upon his ability to analyze the problem, to plan the structure properly and practically, to effect every economy, and to give the building external and internal distinction without extravagance.



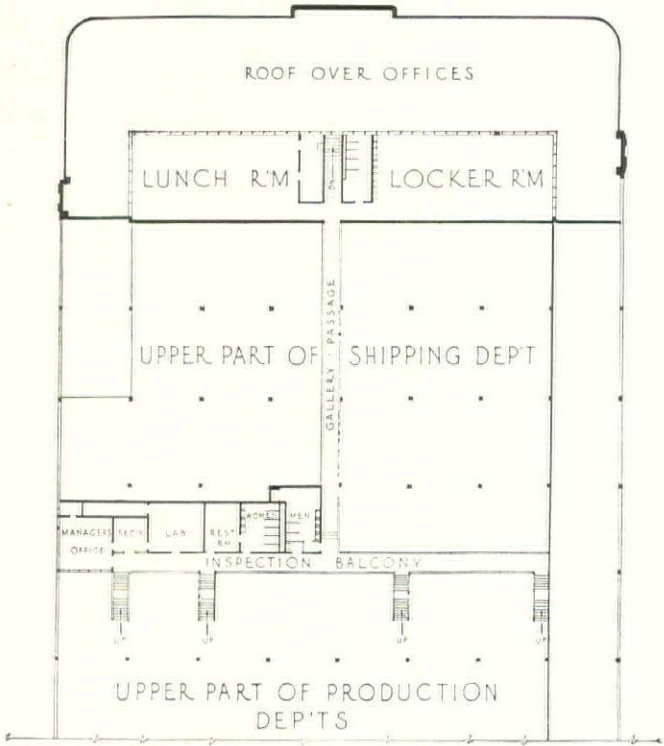
Heurich-Biessing

DESIGNED FOR STRAIGHT LINE PRODUCTION

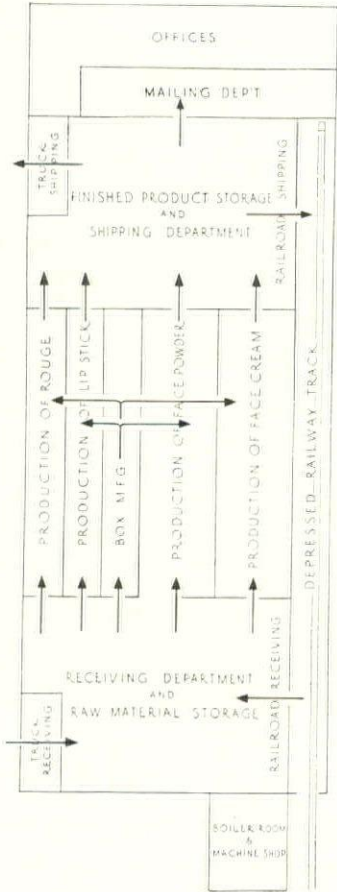
A PLANT which turns out 60 million packages of cosmetics every year must be efficient, and when the product is sold at a popular price the need for efficiency is all the greater. In the one recently built for Lady Esther, Ltd., at Clearing, Illinois, we find a striking example of departments being effectively coordinated and arranged for economical production. The company formerly manufactured its cosmetics in a four-story laboratory at Evanston, Illinois. The first floor of the building was devoted to the receiving and dispatching departments. The raw materials were hoisted by elevator to the storage on the top floor, whence they were conveyed, in successive stages of production, down to the finished product storage located on the first floor. The manufacture of several different articles under that scheme of operation entailed a complex arrangement of departments, with lines of production being repeatedly crossed



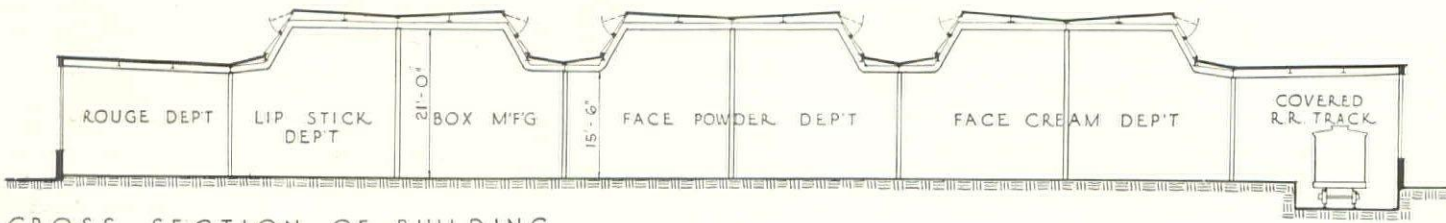
MAIN FLOOR PLAN



PLAN OF BALCONY OVER MAIN FLOOR



PRODUCTION FLOW DIAGRAM



CROSS SECTION OF BUILDING

retraced. It resulted in congestion, lost motion, excessive production costs.

When the increased demand for their cosmetics necessitated additional manufacturing facilities, the management decided upon the erection of a new plant wherein the flow of production could be simplified, with lost motion in the transportation of materials, during process of manufacture, eliminated as far as possible. Several production layouts were prepared by Albert Kahn, Inc. to determine the one best suited to the purpose in hand. At first it was assumed that a multi-story building would be necessary. Departments for successive operations could be arranged over each other to take advantage of gravity in the handling of the materials; but eventually a production flow diagram was evolved which could be embodied satisfactorily in a single-story building, and which would still permit the handling of materials by gravity.

The production flow diagram illustrated on page 98 shows the extreme simplicity of the departmental arrangement finally adopted for the new plant. The raw materials are received at one end of the building. In the course of production they flow in straight lines through the various manufacturing departments directly to the shipping department at the other end of the building. At floor level there is no crossing or crisscrossing of production lines, hence there is no congestion or lost motion anywhere in the plant. Being straight, the lines of production are as short as possible and the handling costs are reduced to a minimum.

In the receiving department raw materials are systematically stacked in direct line with the respective departments they serve. From this storage space the materials are passed to the various manufacturing and filling machines by overhead conveyors. Leaving the ends of the assembly lines, the finished products, in automatically sealed cartons, are transported by belt conveyors to the finished storage where they are again stacked in direct line with the respective departments wherein they were produced. The elimination of unnecessary operations, and the simplification of the lines of flow, effect not only great savings in labor cost, but also a general orderliness throughout the plant.

The first floor plan, page 98, shows the raw material storage at the south end, and the finished products storage at the north end, extending fully across the building, with the various production departments arranged in parallel sections between them. This plan gives the desired flexibility to the plant. The manufacturing departments can be rearranged, increased, or

FACE CREAM DEPARTMENT

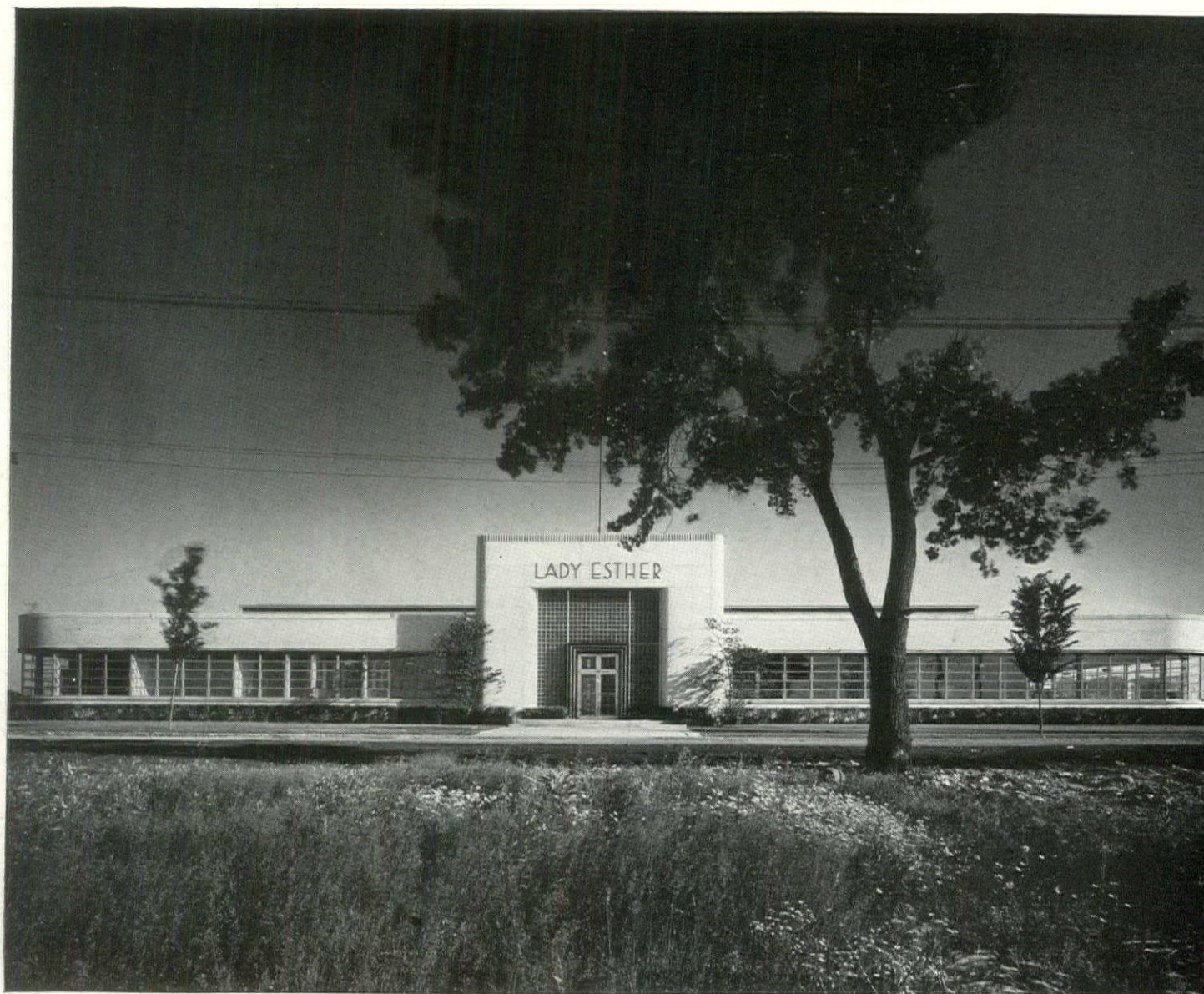


FACE POWDER DEPARTMENT



SHIPPING DEPARTMENT





Hedrich-Bless

in width at will. When new products are
en, further manufacturing sections can be
merely expanding the building eastward on
ground reserved for this purpose. And these
tions can be made at any future time with-
ing or disorganizing the originally conceived
of operation.

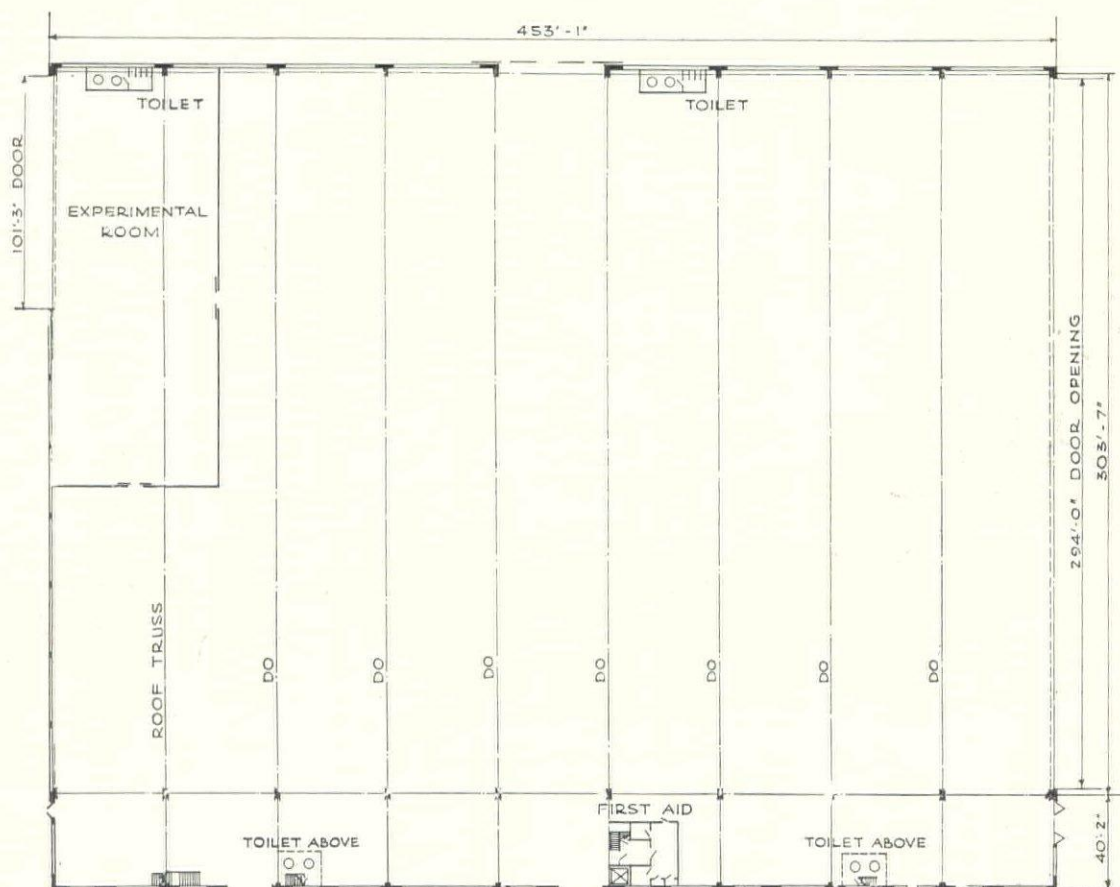
licity of layout effects economies in the con-
n cost of the building, and these economies
mented by other features in the design. To
gravity flow of materials in a single-story
, as was formerly accomplished in the multi-
laboratory, balconies are required over certain
manufacturing equipment. The clear height
floor to ceiling necessary for these balconies
equipment installed thereon is 21 ft. Had the
building been designed with this clear ceiling
the construction cost would have proved ex-
. Consequently space in the monitors, which is
ise wasted, is used for the balconies. Instead
nary roof trusses, solid steel beams support the
The height from floor to underside of the
was fixed at 15 ft. 6 in. The beams were bent
distance of 5 ft. 6 in. to form monitors for light
entilation, as shown in the cross-section of the
ng. These monitors run parallel with, and di-
over, the production lines. The unobstructed
resulting from the substitution of bent beams
eel trusses is then available for the installation
e balconies and overhead conveyors. Additional
omy in construction cost resulted from placing
cafeteria, locker room, rest and toilet rooms,
ager's office and laboratory on raised balconies
ected by an overhead gallery.
as been found profitable to make working condi-
s as pleasant as possible, and considerable atten-
was given to this part of the problem. Employees,
instance, enter the building directly through the
n lobby, and differentiation between categories
workers has been studiously avoided. The color
eme is bright and cheerful. Floors are highly
ished so they can be kept thoroughly clean,
d the various manufacturing departments are con-
antly kept in shipshape order. The atmosphere pro-
uced by such inexpensive amenities has a direct
lation to increased quality of output.

MAIN ENTRANCE LOBBY



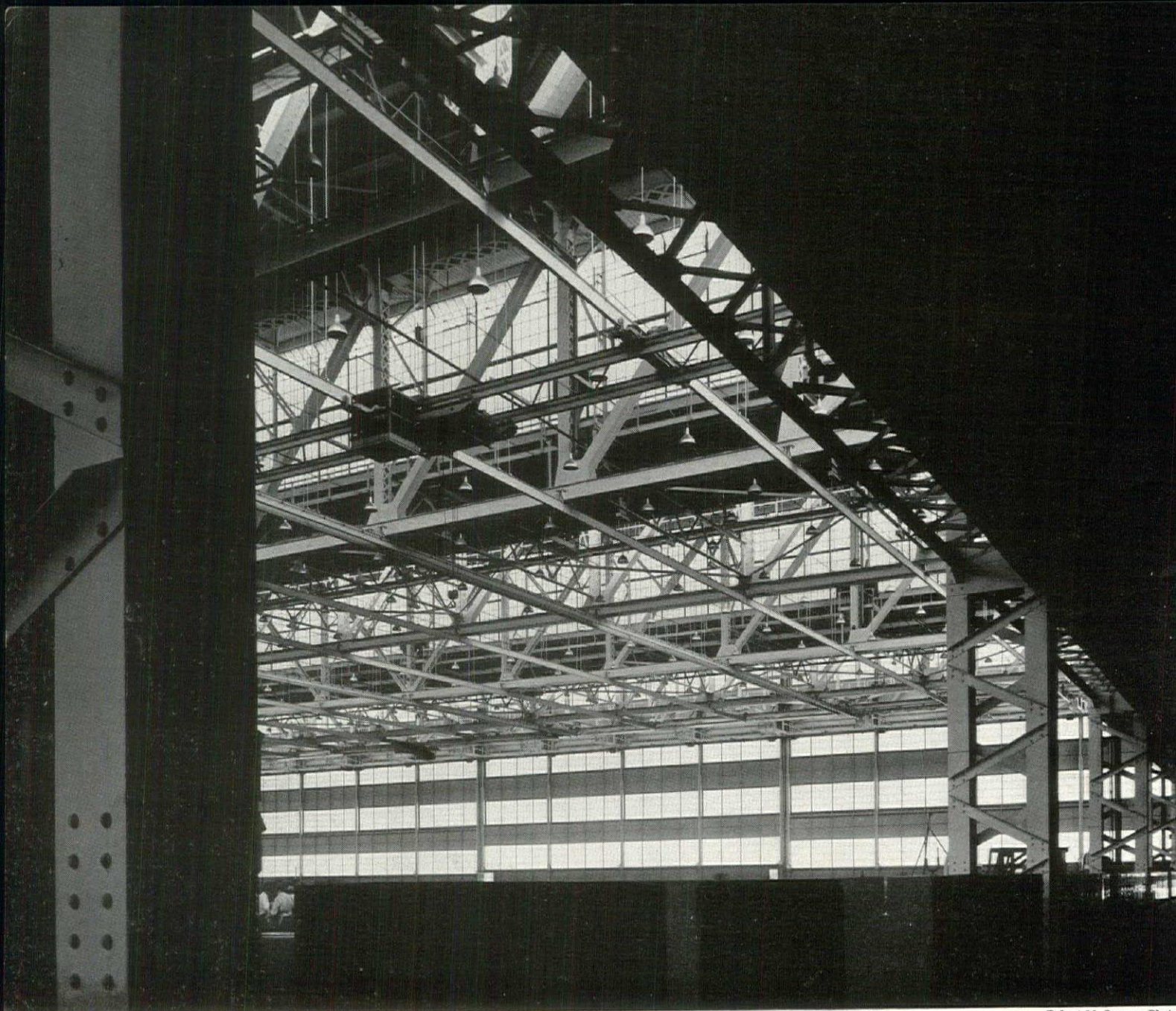
Chicago Arch. Photo Co.



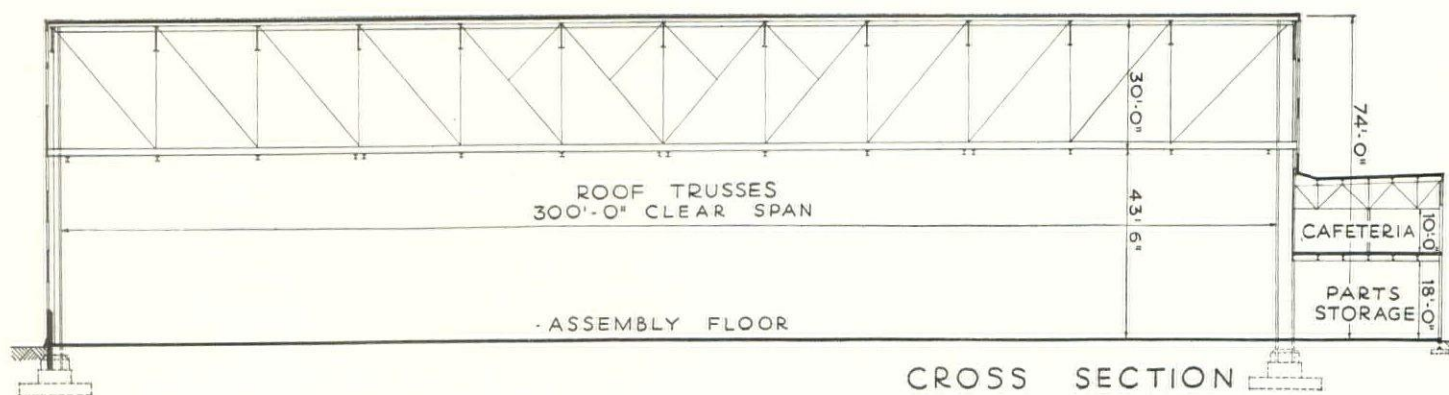


GROUND FLOOR PLAN

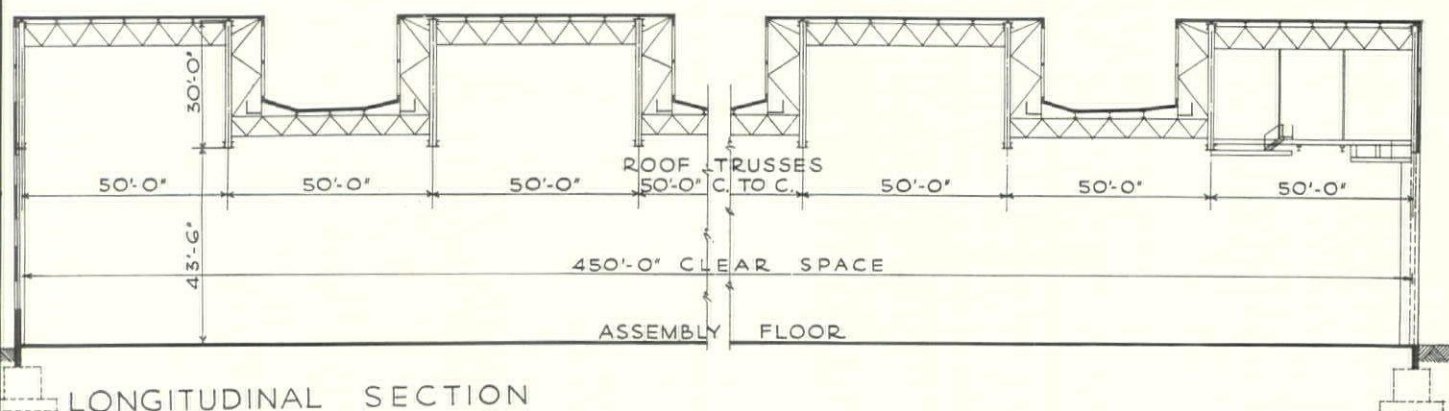
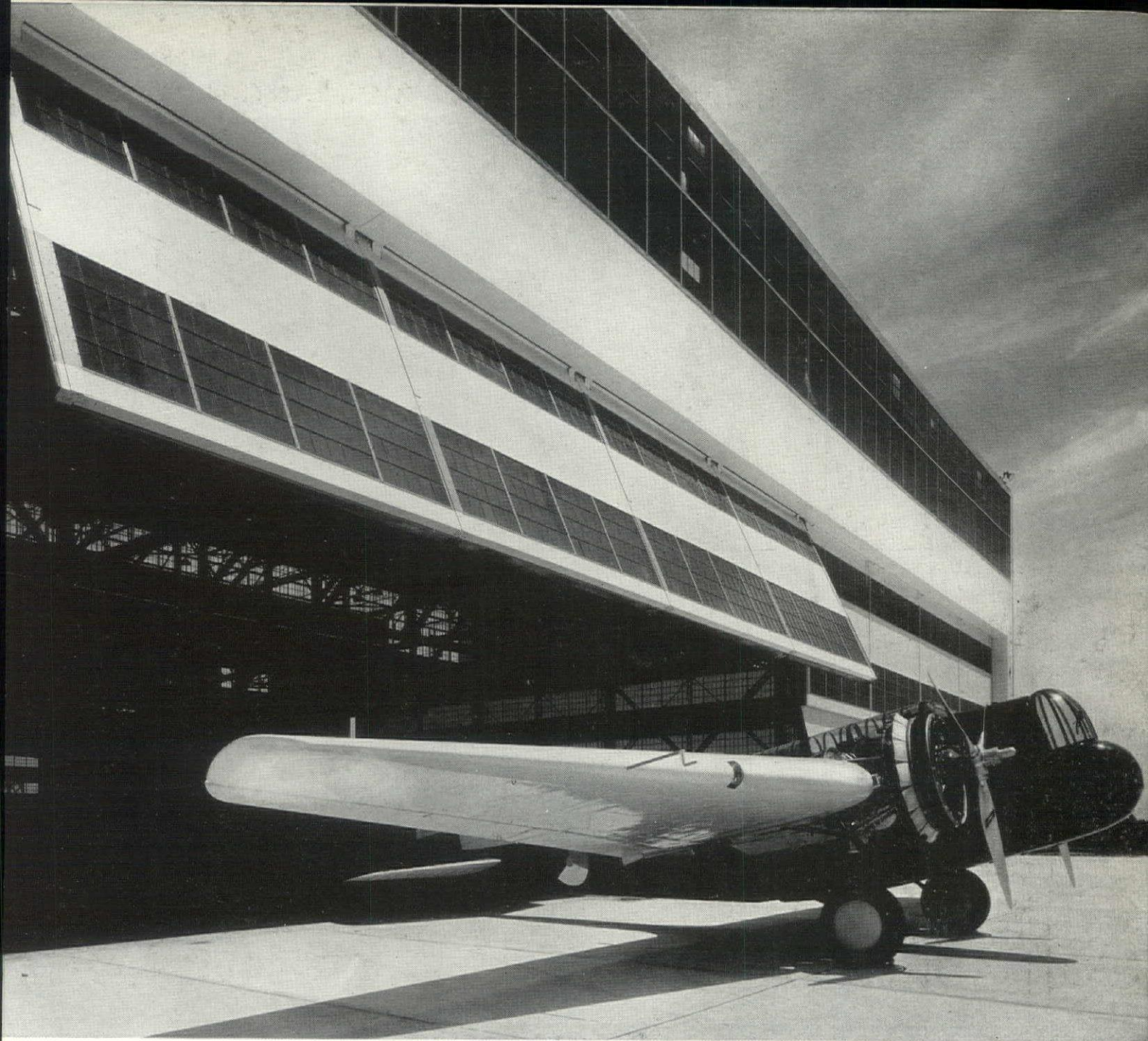
THE problem presented by the Glenn Martin assembly building was unique even in the Kahn organization's varied experience: the client required an enclosed space 300 x 450 ft. with no interior columns. The 300-ft. trusses supporting the roof are the longest flat-span trusses ever used in a building, and the end door, which operates in three parts, is as long as a city block and as high as a three-story building. In designing the trusses it was found necessary to depart from ordinary steel fabricating methods, and to have them fabricated as in bridge construction. To arrive at the most practical solution, several squads of designers worked separately on the steelwork, and the most economical truss design was selected. The method is one frequently used by the office and in this case its efficacy was demonstrated in no uncertain manner: the huge span was constructed with the use of only 34 pounds of steel per square foot of floor space.



Robert M. Damora Photo

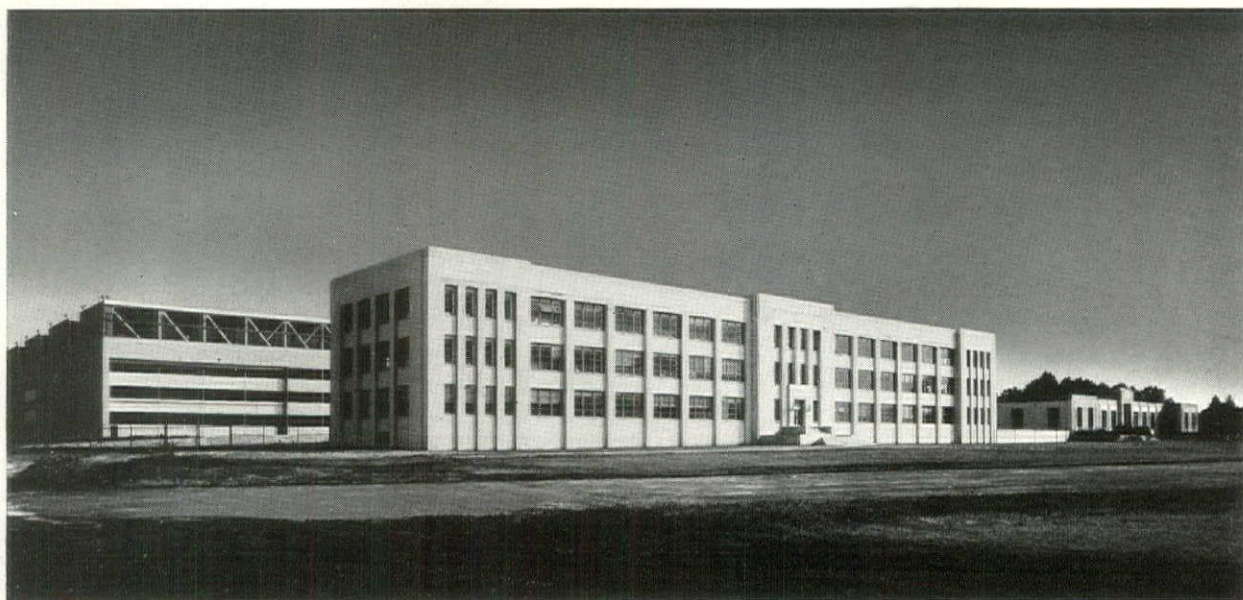


THE diagrammatic section above shows one of the ten 300-ft. roof trusses. The tremendous span was required by Mr. Martin, not because any present-day plane needs so large a space, but because of his belief that in the near future transoceanic planes will be constructed which will have wing spreads approaching 300 ft.



THE overhead doors at the 300-ft. end of the building have been designed to operate in three sections, and can be opened in parts or simultaneously. The large two-motor plane in the foreground is dwarfed by the structure behind it, and the architects estimate that about forty such ships could be assembled at one time within the building.

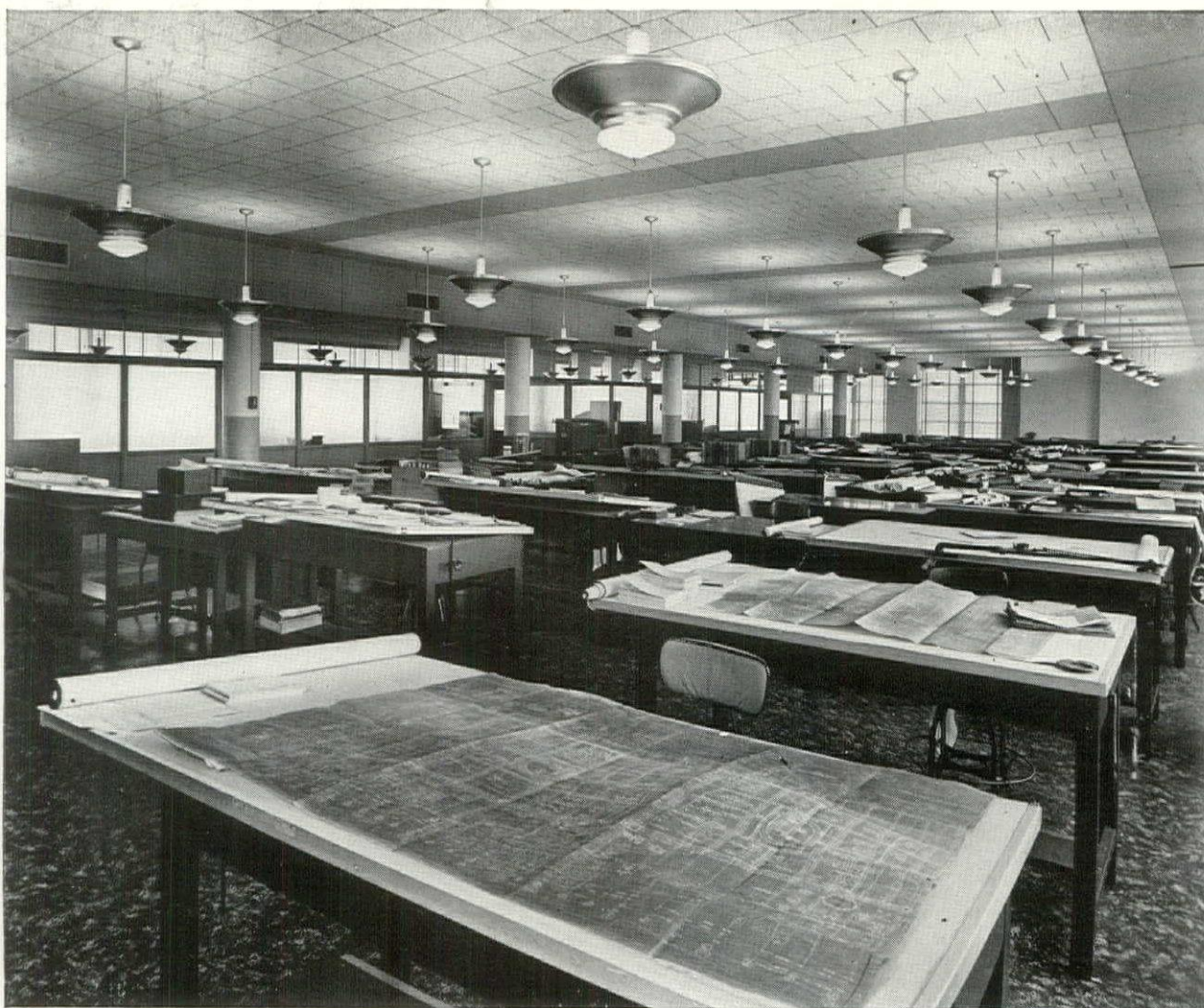
ASSEMBLY BUILDING GLENN L. MARTIN COMPANY



Robert M. Damora Photos

ENGINEERING BUILDING

DRAFTING ROOM





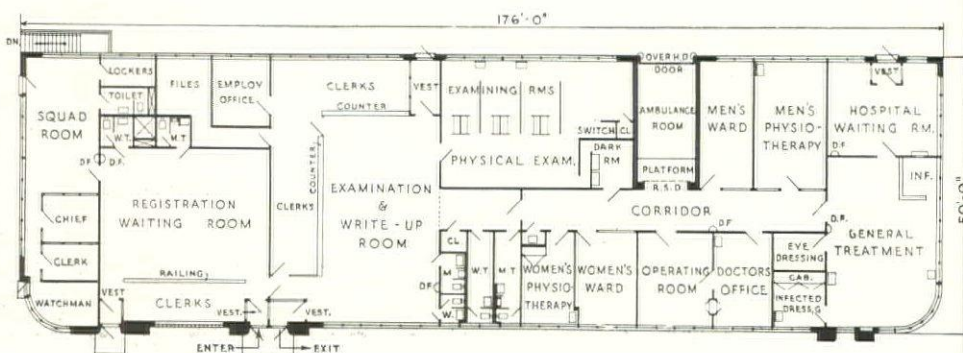
Hedrich-Blessing

THE extension to the Kelvinator plant was completed in the latter part of 1936. This structure, which has large interior column spacing 60 x 50 ft., with a clear story height of 18 feet from the floor to the underside of roof trusses, was built at a cost of \$1.54 per sq. ft., which included all architectural trades, structural steel, plumbing, heating, lighting, and sprinkler system—in short, the complete building ready for the owner's occupancy. If the factory were built today, its construction cost would be slightly higher.



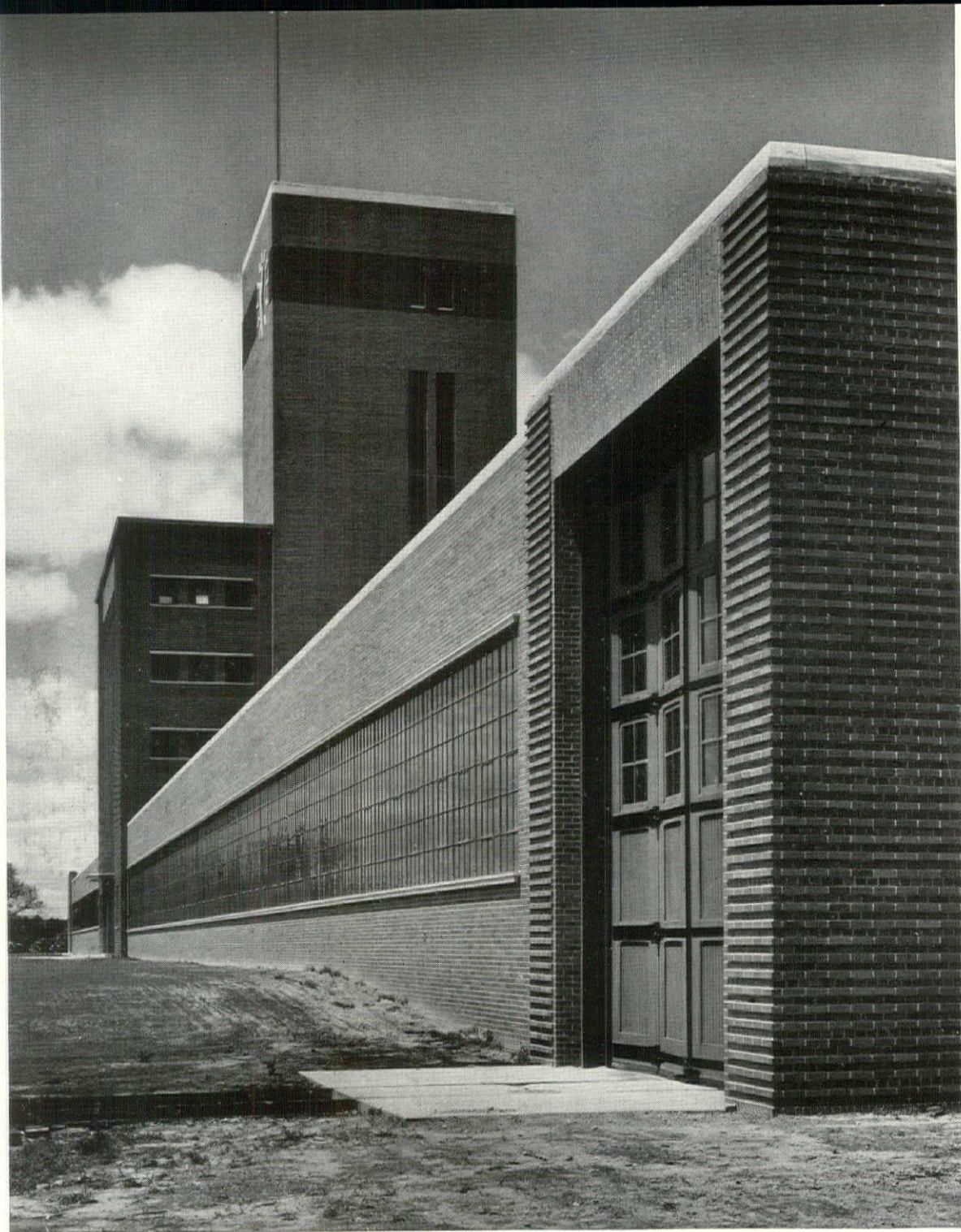
Hedrich-Blessing

THIS compact, ingeniously planned structure houses a number of services ordinarily placed in separate units. Watchmen's offices occupy the front portion; behind is the employment office, with physical examination rooms adjoining. Since a staff of doctors and nurses is required for examination of employes, the factory's first-aid department has also been placed in the building, thereby utilizing the medical services more efficiently.





Hedrich-Blessing



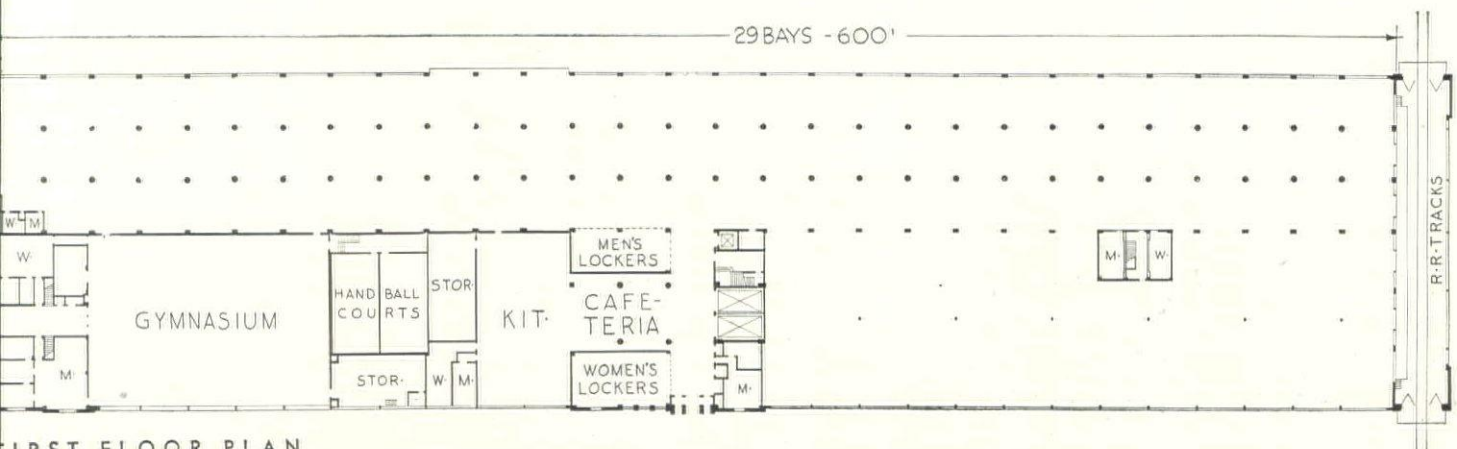
Multi-Color Photo

MURROUGHS ADDING MACHINE COMPANY, PLYMOUTH, MICHIGAN

LEAR manufacturing space, unimpeded by stairs or toilets, is the most notable feature of this building. The typical floor unit consists of three bays running the full length of the structure, with services located in towers. On the first floor a cafeteria, gymnasium and other recreational facilities are provided.



TYPICAL UPPER FLOOR



FIRST FLOOR PLAN



Hedrich-Blessing Photo

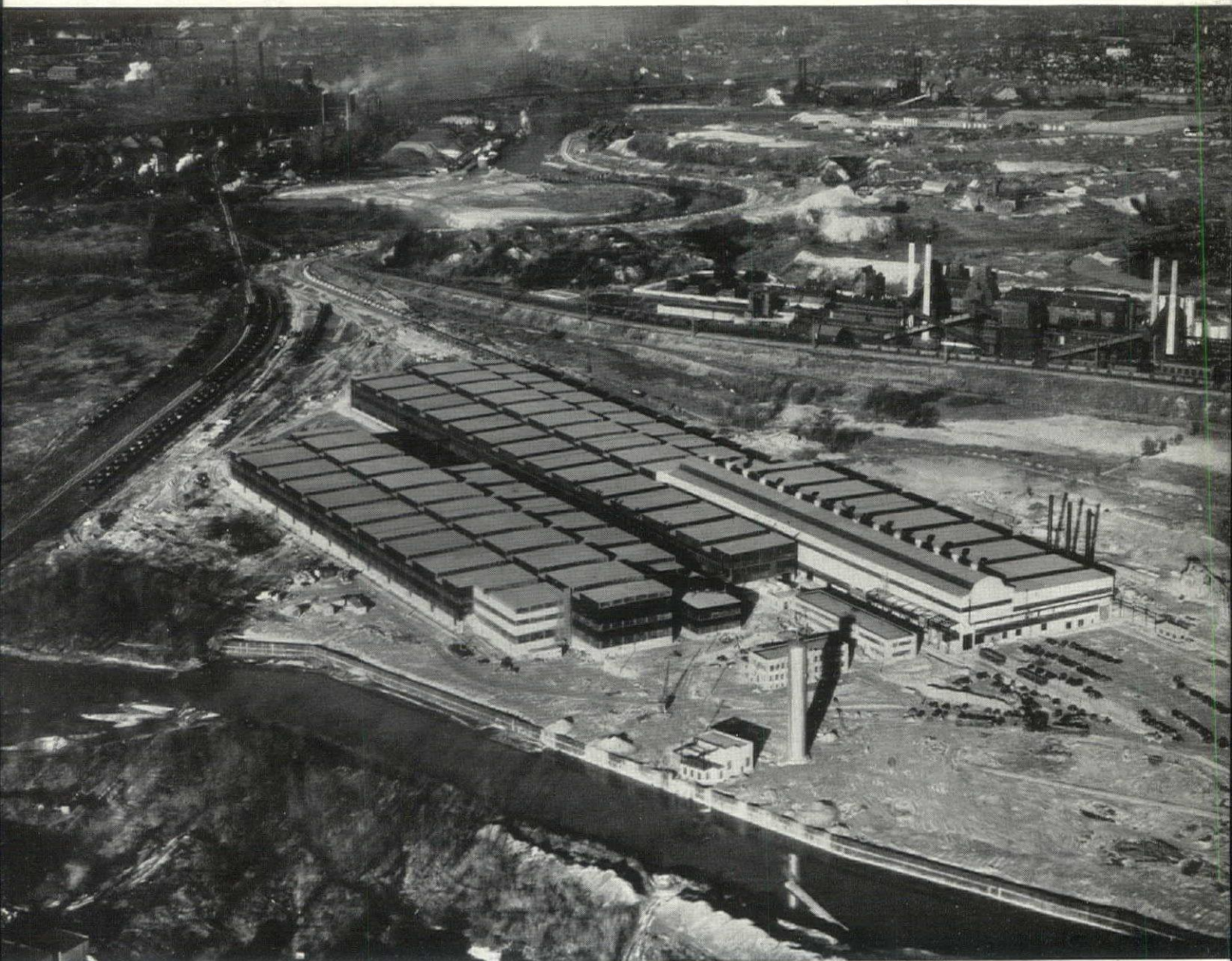
GRAIN ELEVATORS W. K. KELLOGG CO., BATTLE CREEK, MICHIGAN

THE extraordinary purity of form of the most utilitarian structures—those with the least amount of “design” in them—is a phenomenon that was noted long ago by the first European modernists to visit this country. Typical are the handsome grain elevators for the Kellogg Company, and the De Soto press shop, which last year was awarded a prize for the best use of glass in an industrial building. Conservatives may rebel at the application of architectural criteria to such structures, but the fact remains that it is precisely in such buildings that modern architecture has reached its most complete expression.



PRESS SHOP DE SOTO DIVISION CHRYSLER CORP. DETROIT, MICH.





Hunter Aerial Surveys Co.



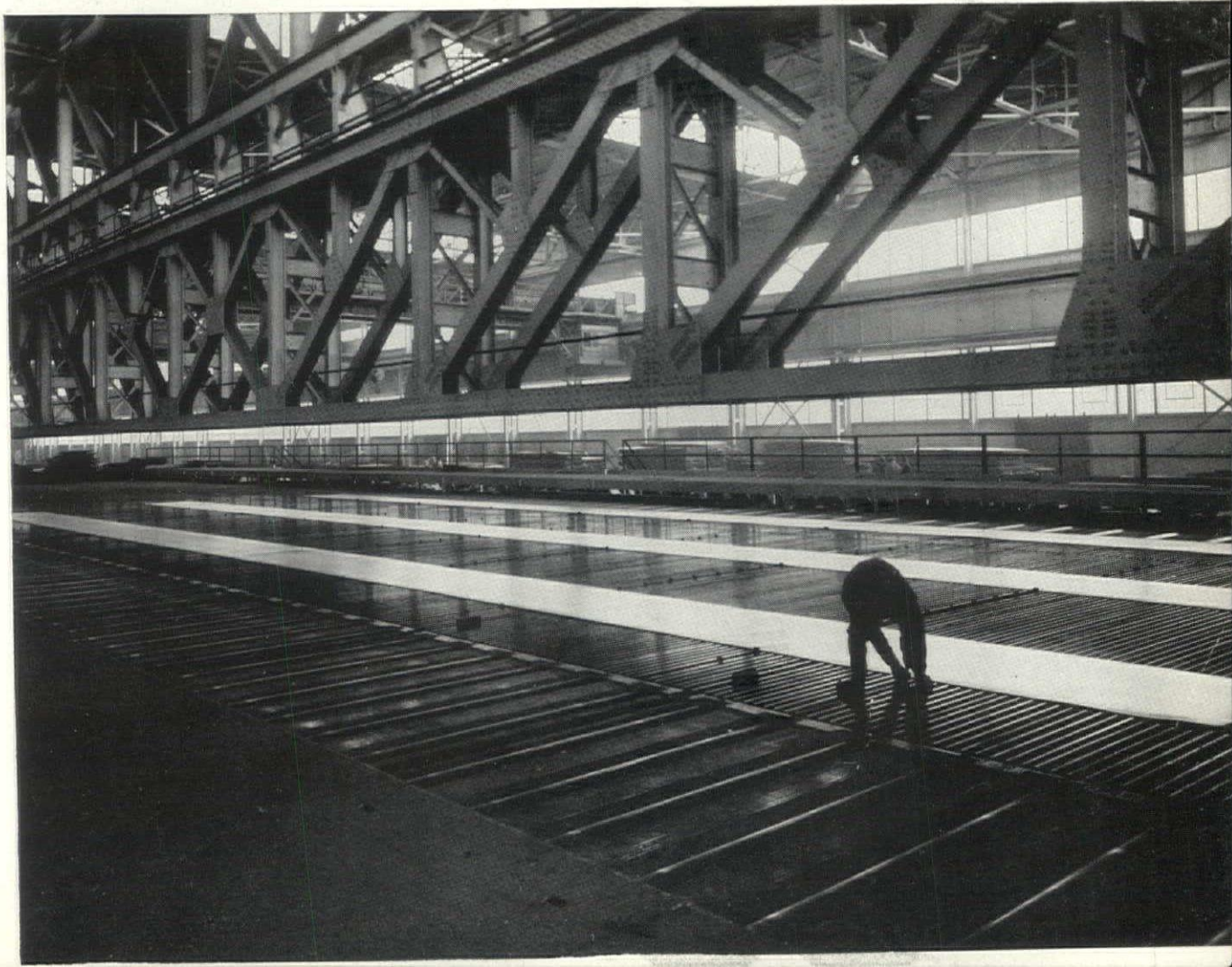
Robert M. Damore

IT is not common practice for steel corporations to employ consulting architects; the field is one which requires highly specialized knowledge of complex production processes, and the customary method of designing plants is to have them done by company engineers. This strip mill for the Republic Steel Company is the first in this country to be designed by a firm of independent architects. Drawings had been prepared by Republic engineers before the Kahn organization was given the commission, and a saving of 1,200 tons of steel was one of the economies effected by the architects, thus bearing out the contention of the profession that in industrial work a firm of architects can render a client valuable services, with the additional advantage of leaving the company's staff free to concentrate on process layouts and the placing of equipment. The Republic plant is perhaps the most dramatic example of the speed with which the Kahn organization can function: eleven days after sketches were started, working drawings were sent out for steel fabrication.

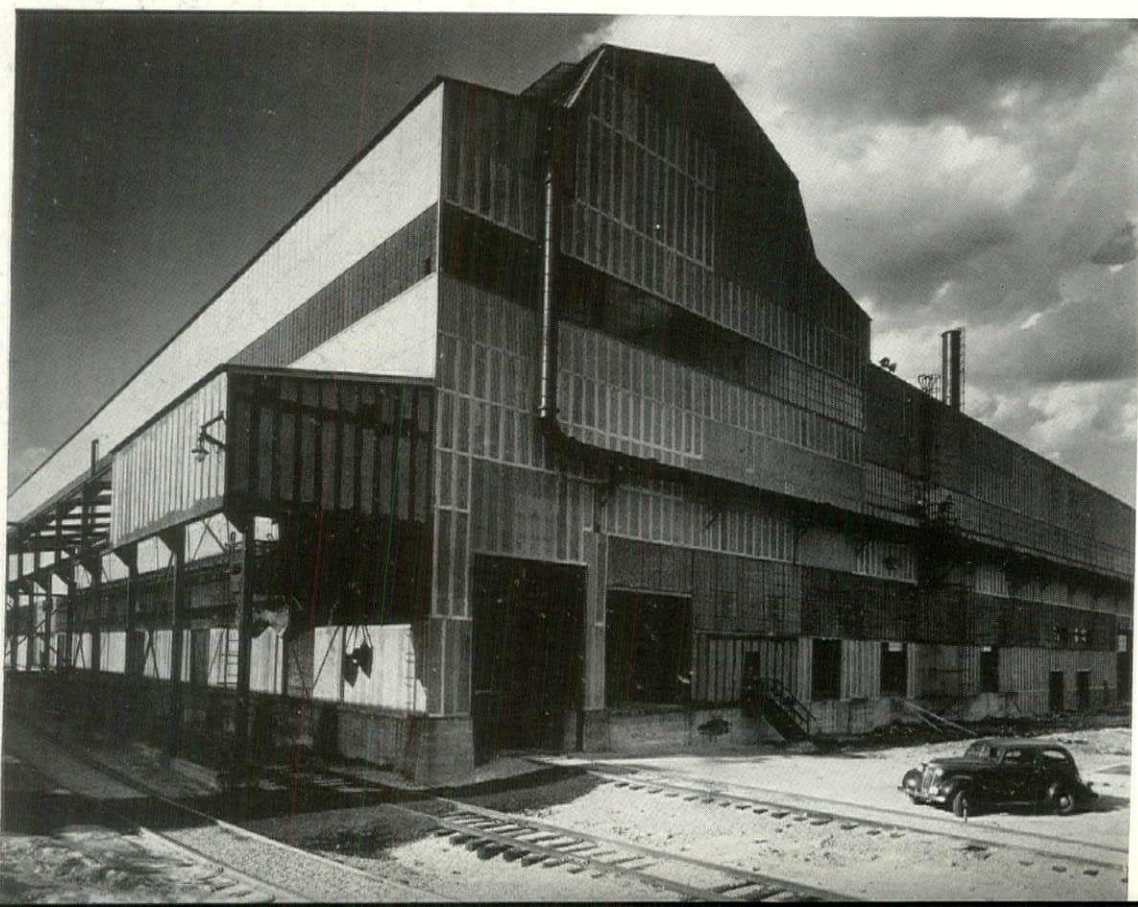
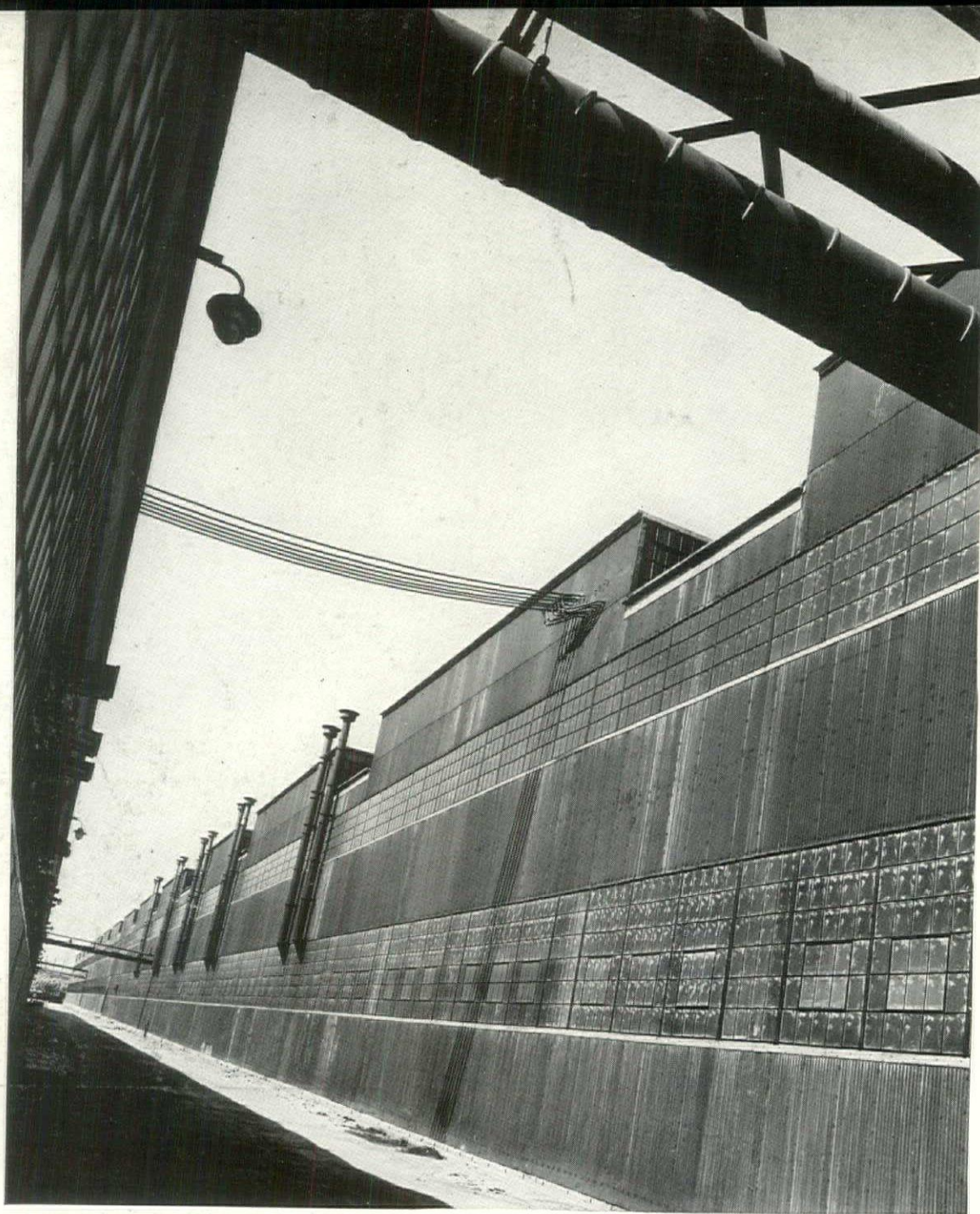
STRIP MILLS REPUBLIC STEEL CORP., CLEVELAND, OHIO



Above, Robert M. Damora



STRIP MILL
REPUBLIC STEEL

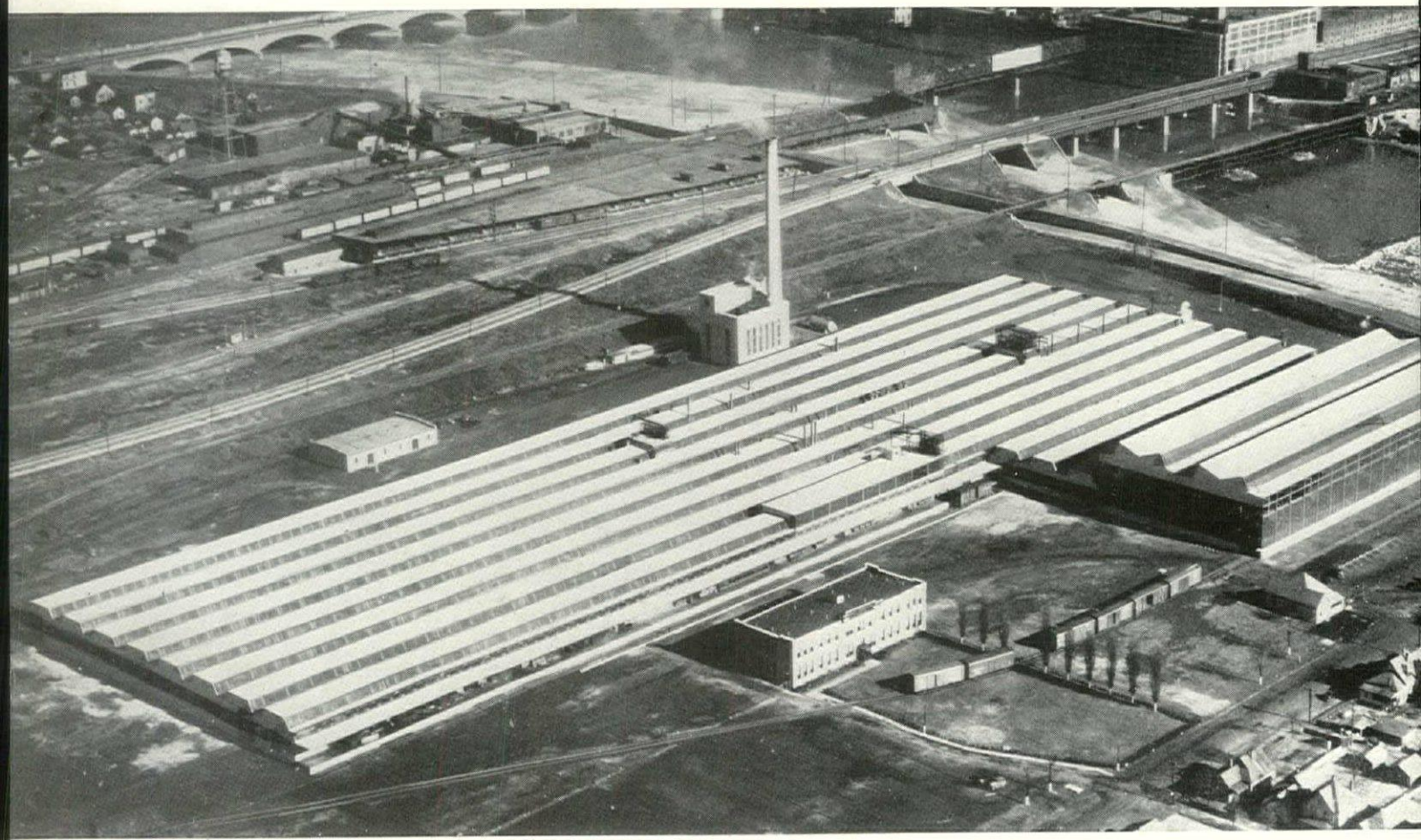




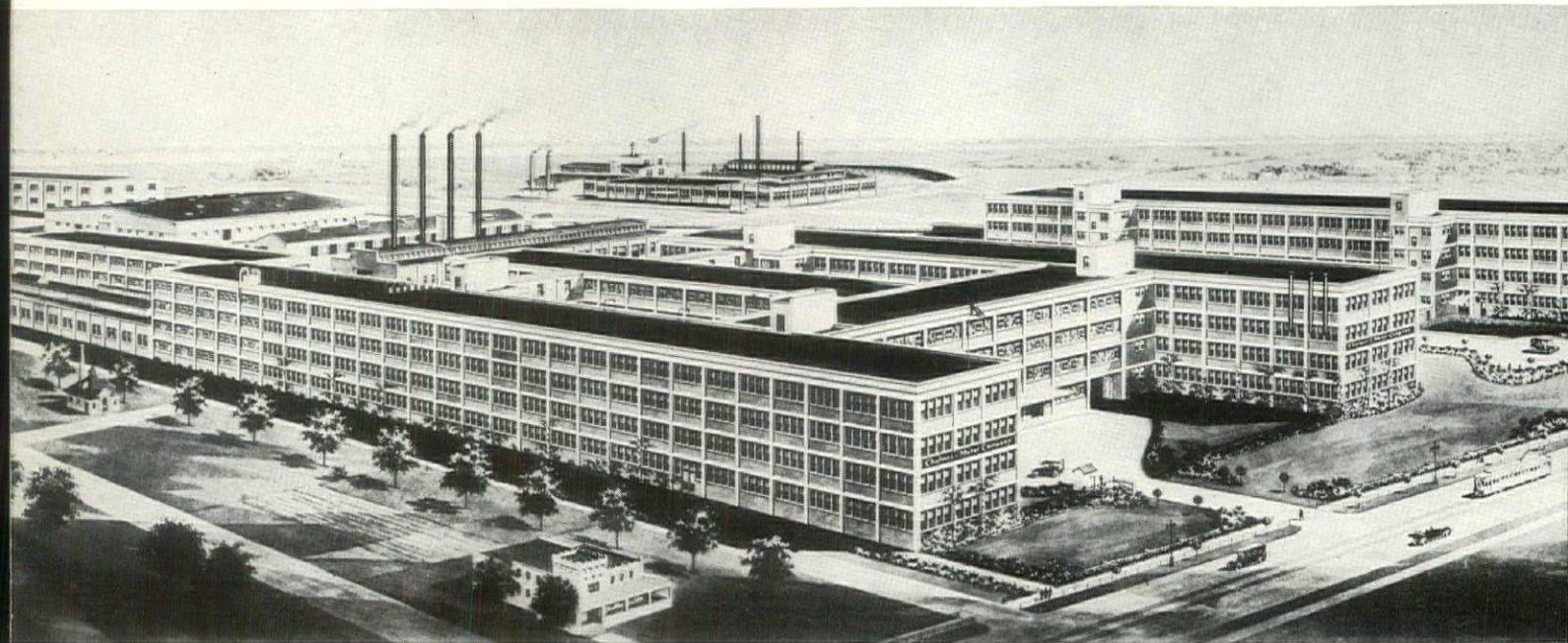
DELCO APPLIANCE DIVISION, GENERAL MOTORS CORP., ROCHESTER, N. Y.

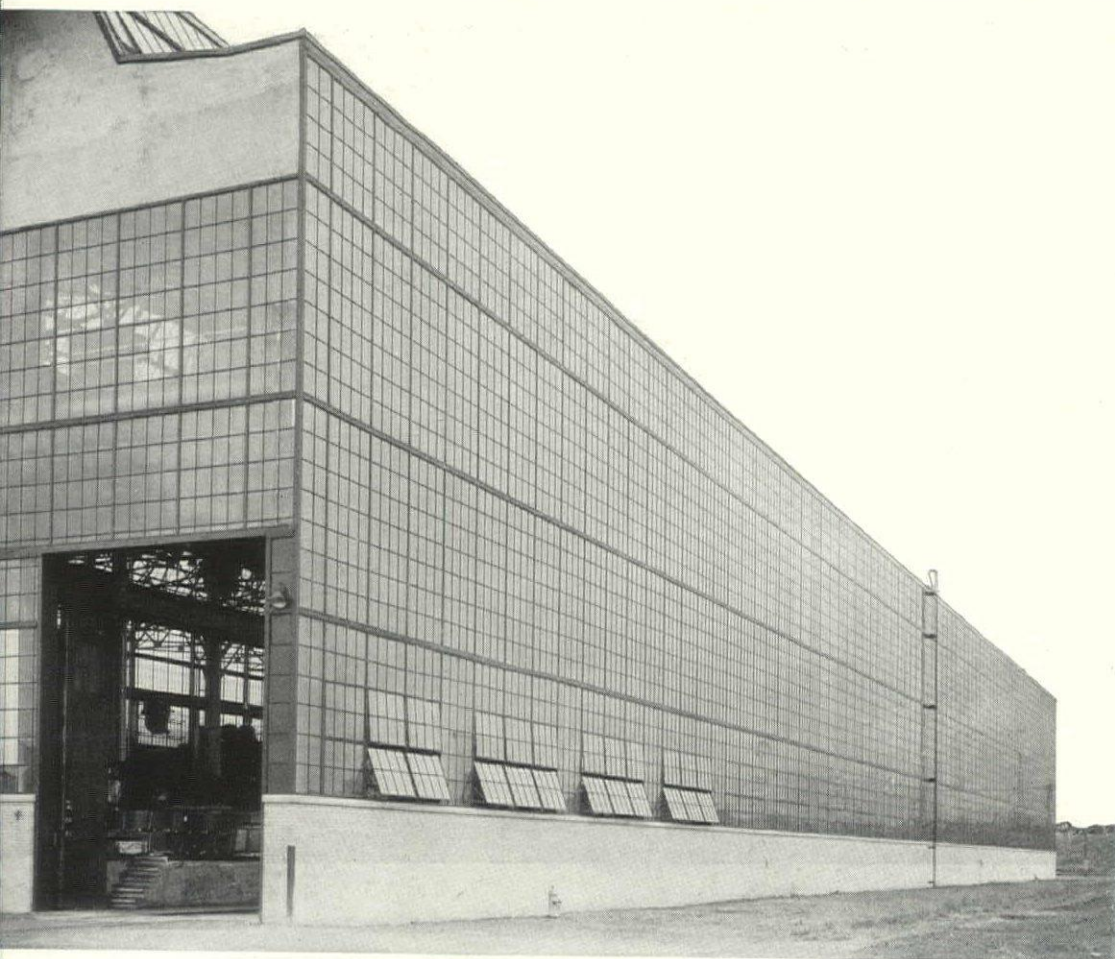
THE interior of this plant is of interest for both the beautiful simplicity of the structural steelwork and for the lighting. Daylighting is obtained through the monitors, and the lighting fixtures have been placed to approximate the direction and intensity of natural light as closely as possible. The fixtures are of the new combined mercury vapor and Mazda type. A complete installation of bus bars provides the desired flexibility in power wiring.





COMMERCIAL BODY PLANT CHEVROLET DIVISION



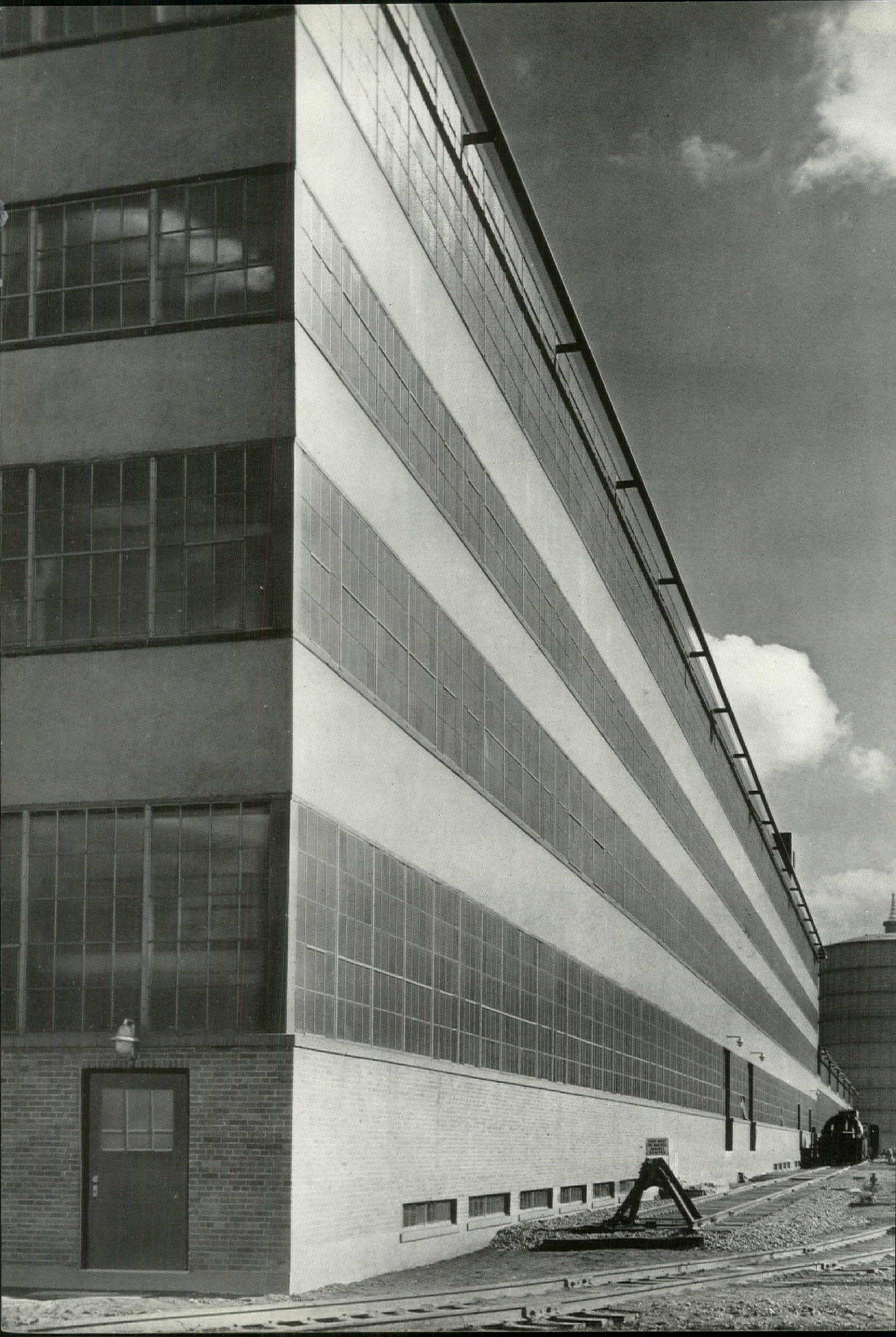


GENERAL MOTORS CORPORATION, INDIANAPOLIS, IND.

THE photographs on the opposite page illustrate two conflicting theories of industrial architecture. The lower photograph shows a plant where departments having different operations are housed in separate buildings, each of which was designed for the required operation. In the case of the Chevrolet Commercial Body plant shown in the upper photograph, all departments are concentrated in one building and under one roof.

Obviously it is often necessary to have a plant composed of separate buildings, but it is the practice of the Kahn organization to house the entire plant in one building wherever possible. Multiplicity of buildings increases construction costs, due to the number of exterior walls, the intervening courts occupy space which can be used more advantageously for production, and their maintenance is expensive. Heat losses through exterior walls are also greater in a group of buildings.

The main criticism advanced by the Kahn office, however, is on the grounds of flexibility. As processes change, as departments shrink or expand, or as new departments are added, the advantages of the single structure become apparent. In the case of plant expansion this becomes particularly true, since no existing building will be in the path of the proposed addition, as might be the case if there were a number of buildings.



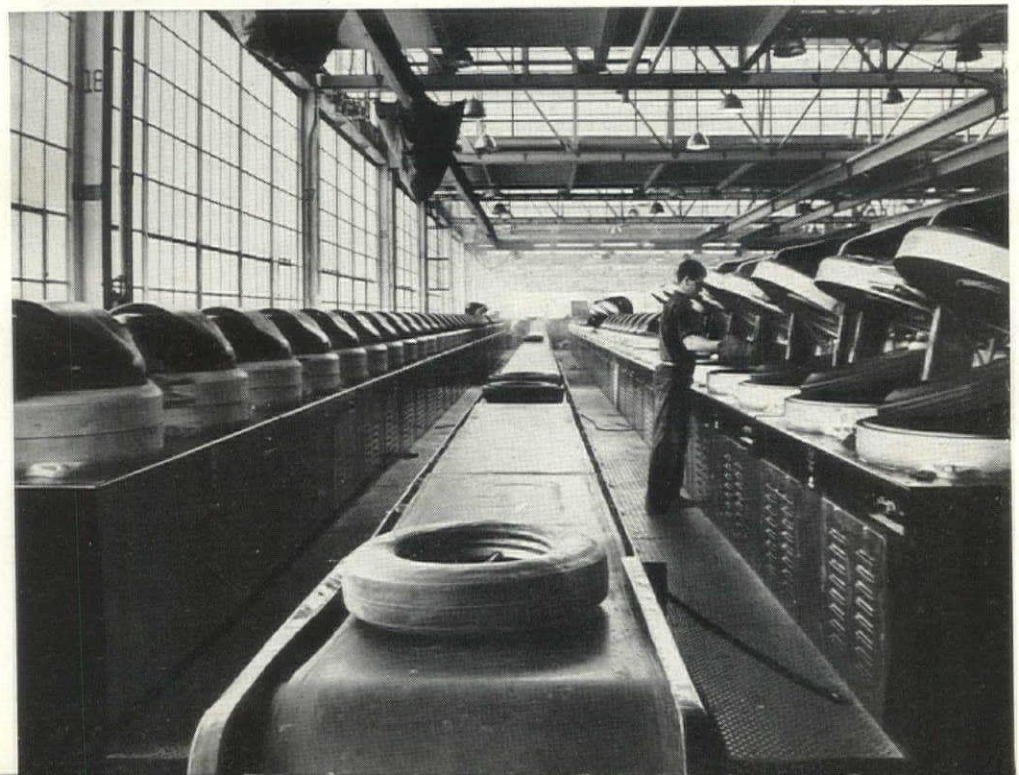
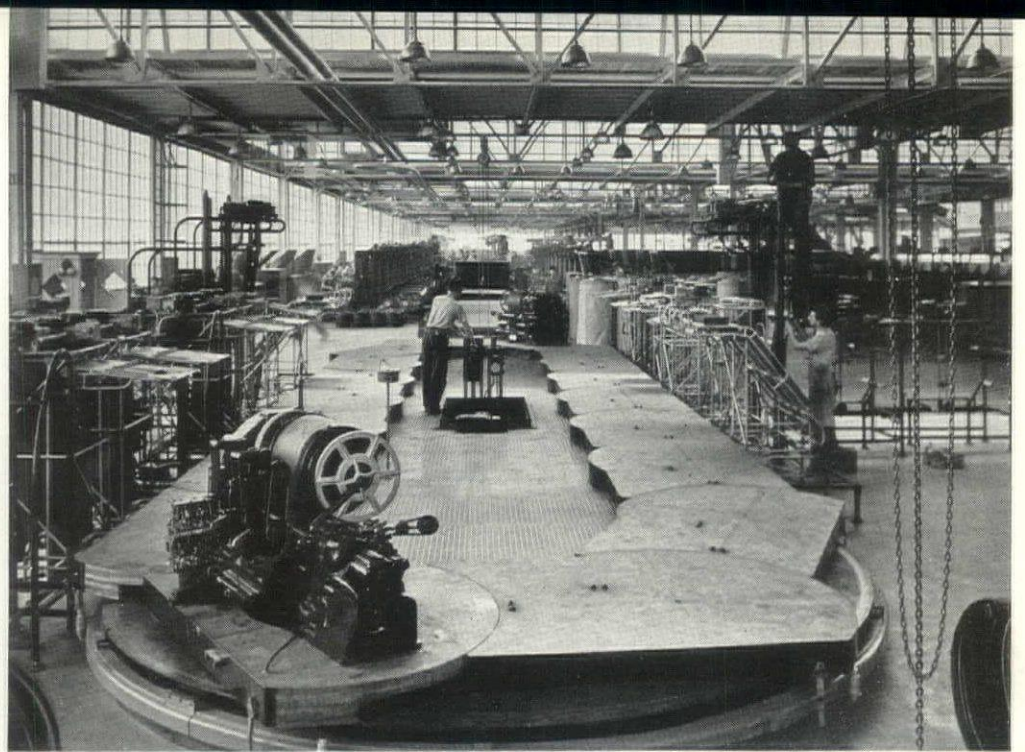
TIRE PLANT FORD MOTOR CO., RIVER ROUGE PLANT, DEARBORN, MICH.



THIS new tire plant is the most advanced installation of its kind, largely equipped with automatic machinery. The exterior of the building, shown on the preceding pages, follows the standard outline of the Kahn factory: simple mass, large glass areas, and undecorated walls. The rail around the top is used for window cleaning apparatus. Views on these pages show (below) the mill area, and on the opposite page, a number of the production departments. The illustration at the top shows with particular clarity the high quality of natural lighting obtained.

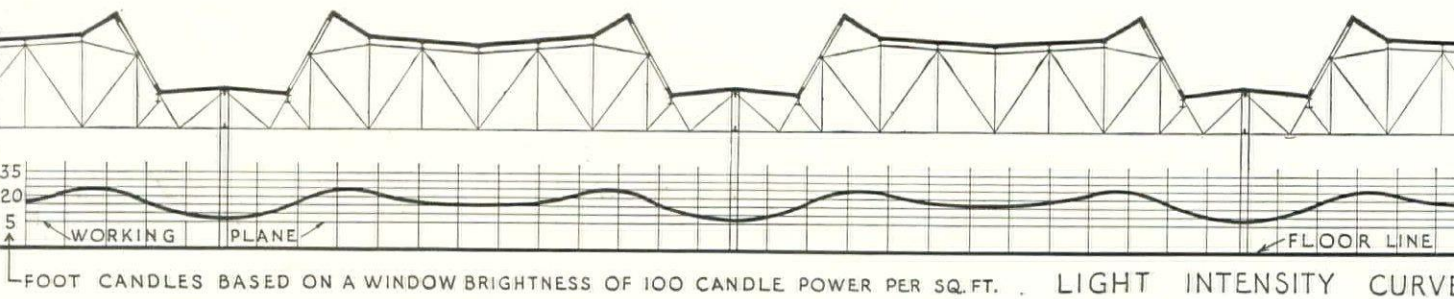
William Vandivert Photo

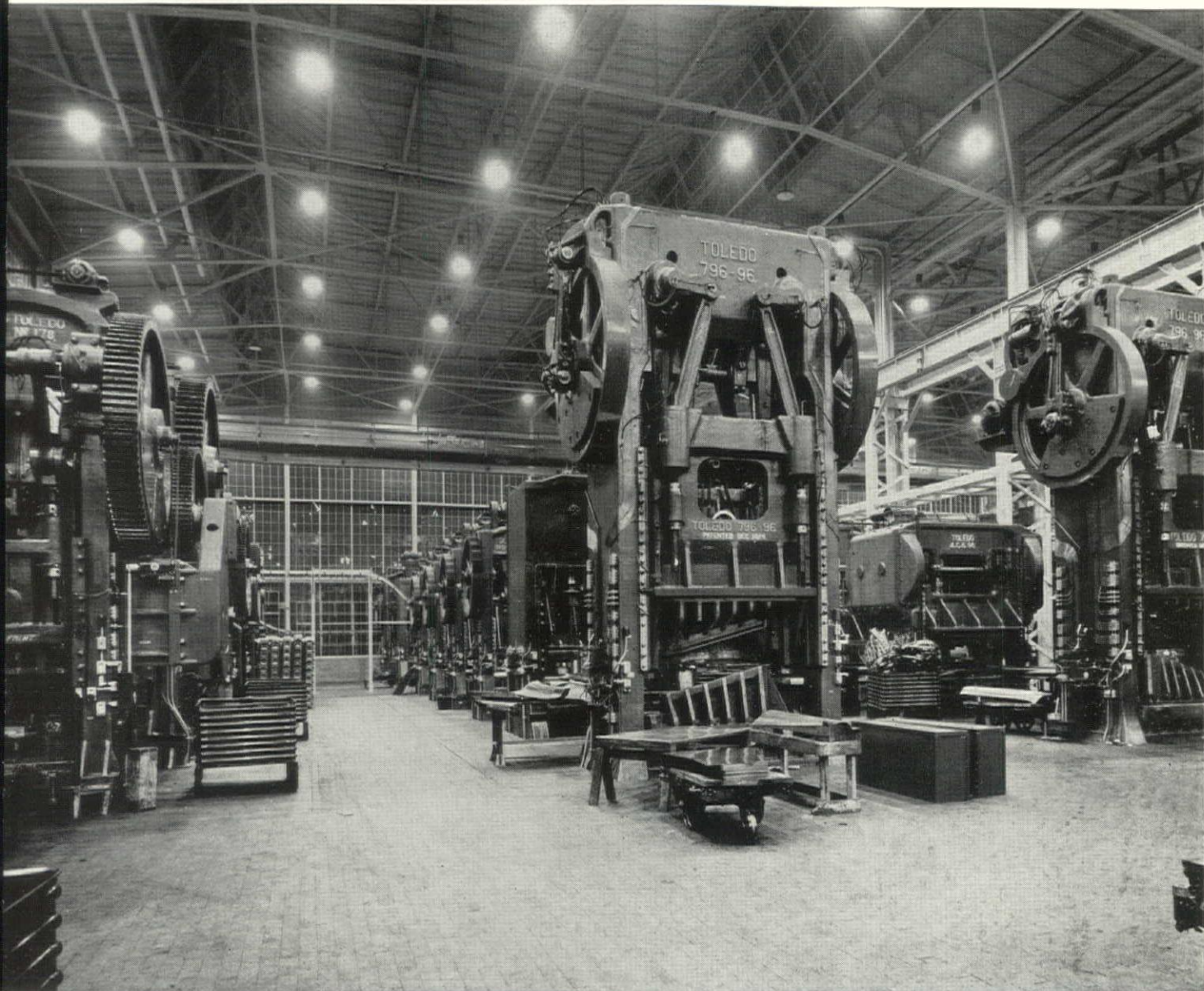






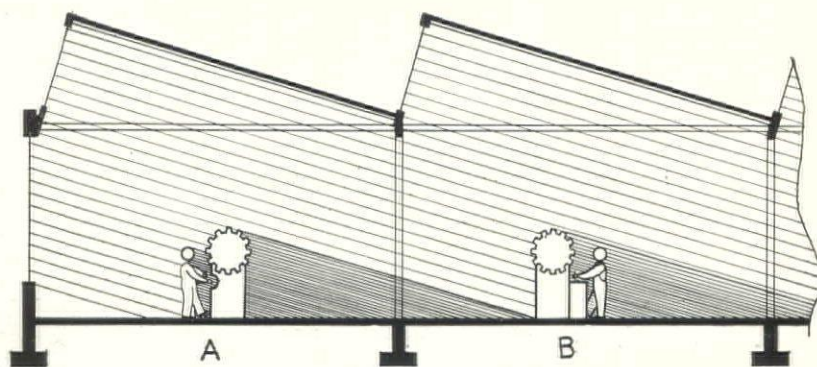
GOOD natural or artificial lighting involves uniformity of distribution in addition to proper intensity. In the above illustration this is particularly well shown by the complete absence of shadows. A further proof of the effectiveness of east-west monitor lighting is indicated by the fact that while work in this shop is most exacting, involving tolerances of 1/10,000th of an inch, there are no individual lights on the machines. The night view of the De Soto

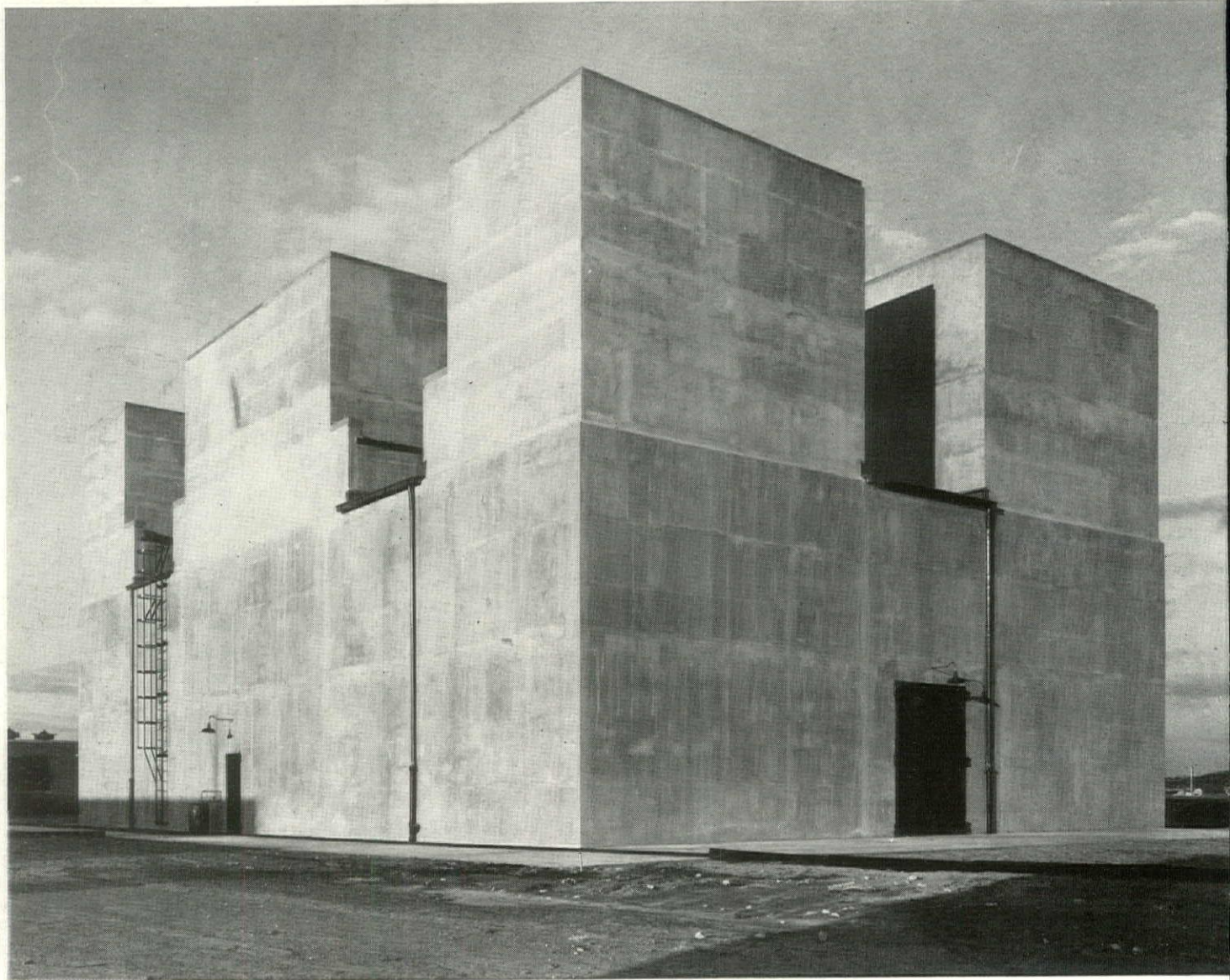




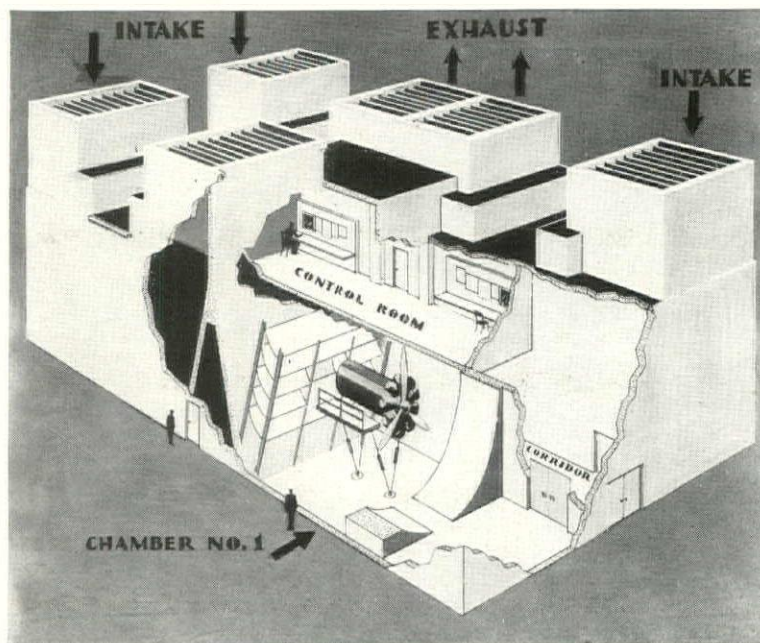
Manning Bros.

plant shows how with correct spacing of high-intensity fixtures, the same results can be obtained with artificial lighting. North lighting, formerly widely used, has few advantages, save in special industries such as textiles, and consequently has been practically abandoned. The diagram shows the effect of north light in any shop interior; either the mechanic casts a shadow on his work, or the machine casts a shadow. A shop lighted in this manner will require individual fixtures for the machines.



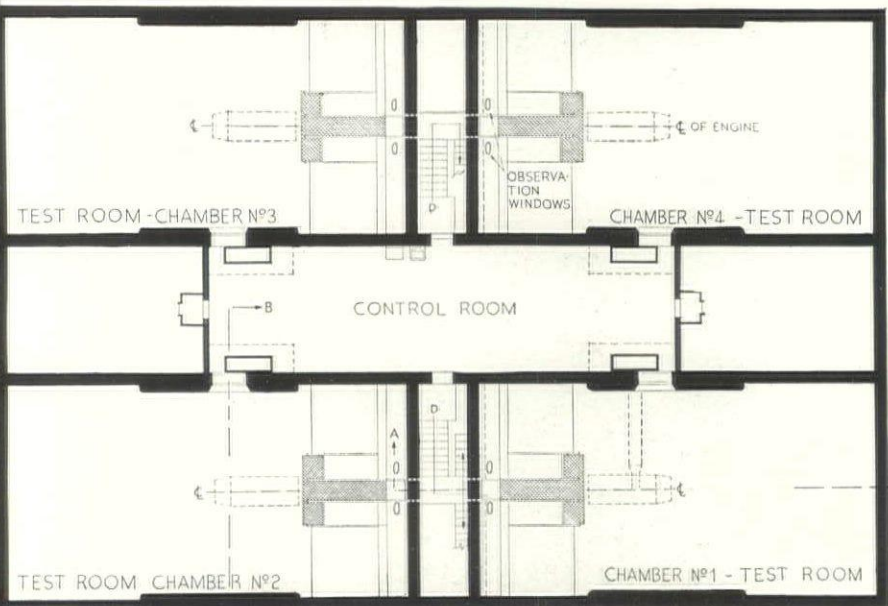


WHEN so special an operation as the testing of airplane engines and propellers must be housed, the form taken by a purely functional design has frequently more architectural quality than much so-called architecture. Such is the case here. As shown by the drawings, four test chambers are incorporated in the structure, each with its separate intake and exhaust tower. The chambers have been made large enough to take 3,000 horsepower engines, although the largest now made are rated at 1,500. Soundproofing presented a major problem, as the observation room is in the center of the building. To minimize noise on the outside, a new type of sound-absorbing material, calistone, was suspended in parallel rows within the stacks, and exterior walls of 18-inch reinforced concrete were constructed to reduce the vibration produced by the engines.

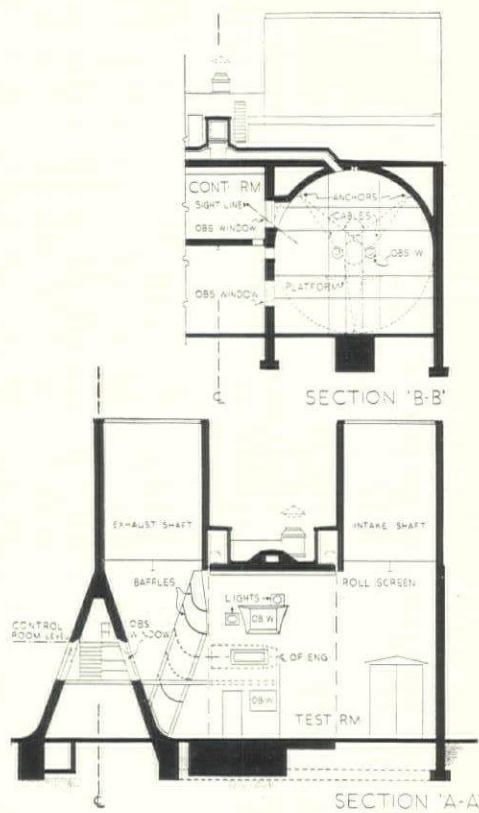




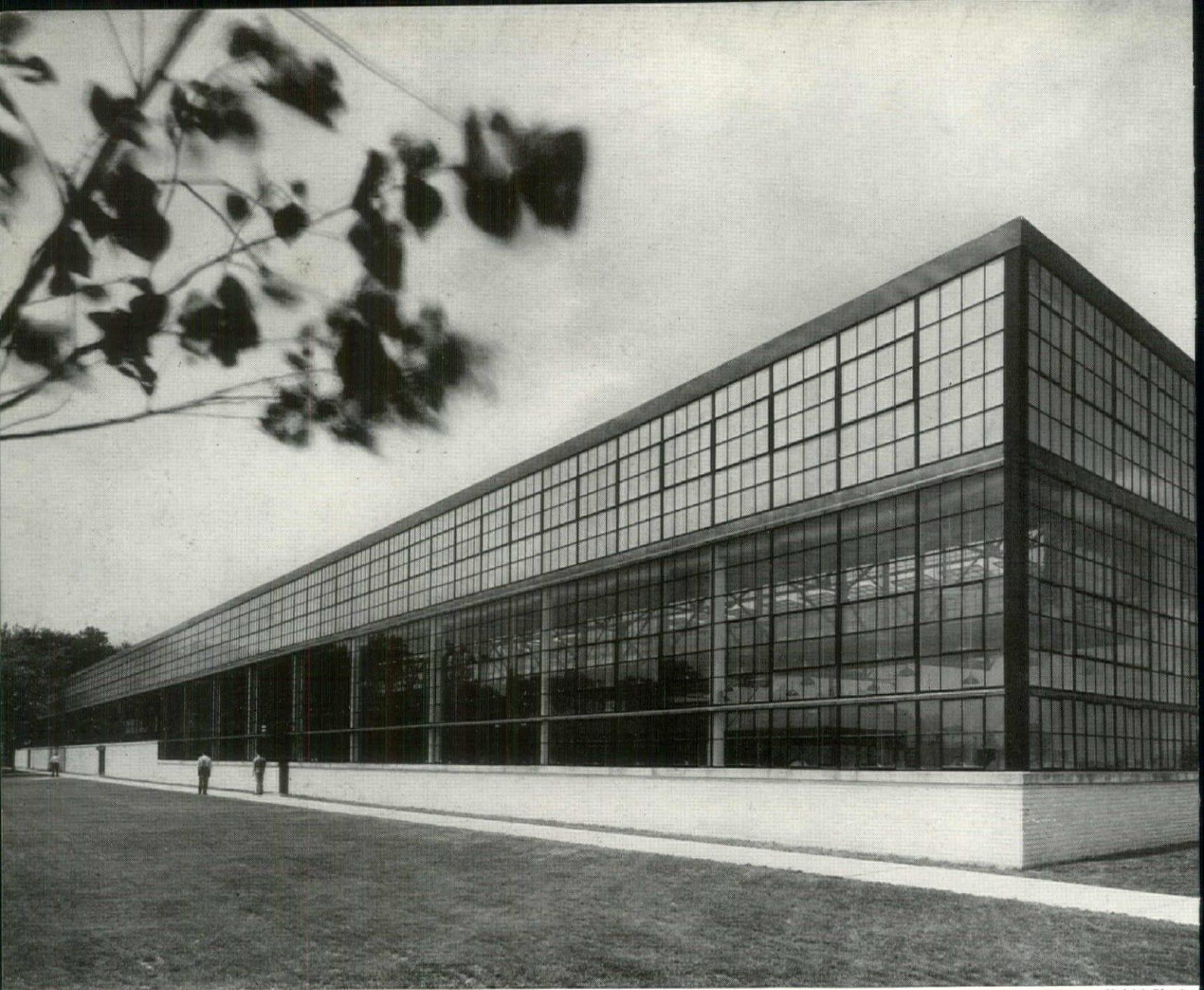
TEST CHAMBER



PLAN AT CONTROL ROOM LEVEL

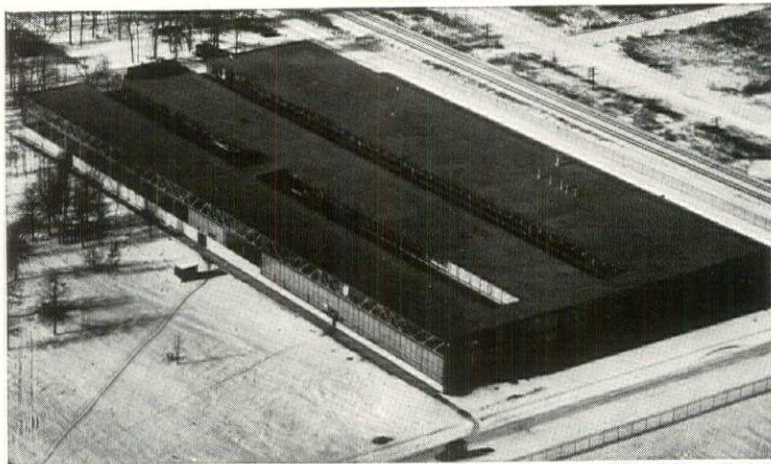


SECTION 'A-A'



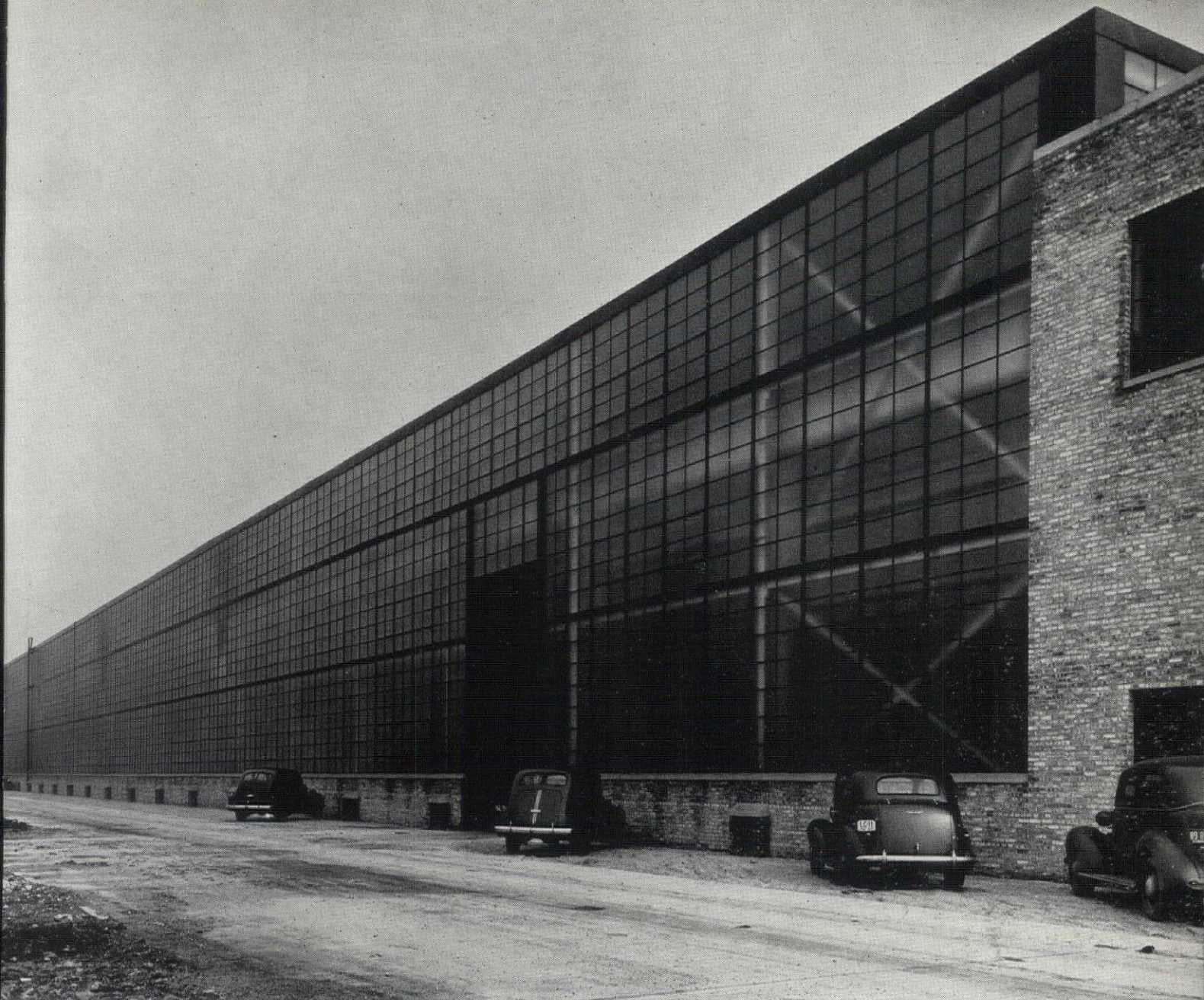
Hodrich-Blessing

MANUFACTURING BUILDING DIESEL ENGINE DIVISION GENERAL MOTORS REDFORD, MICHIGAN



© Detroit News Airphoto

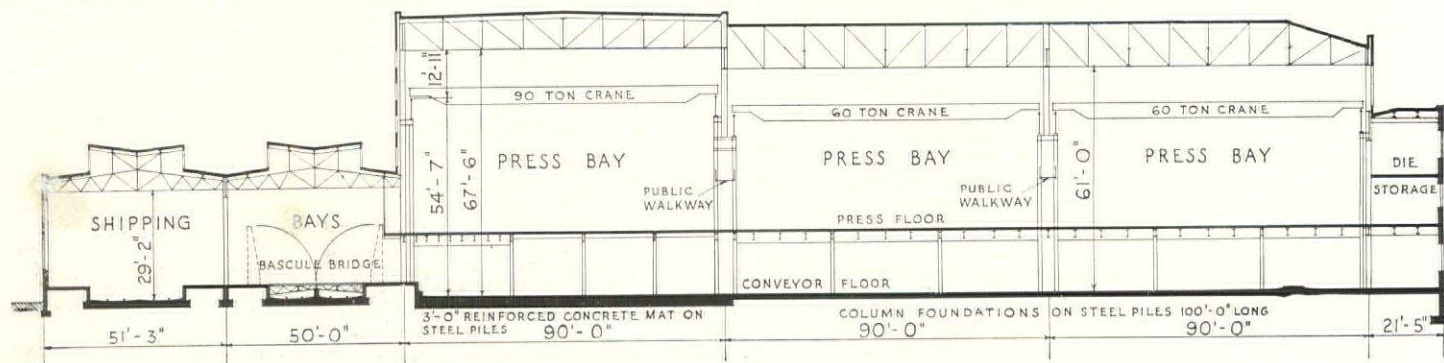
THE plant illustrated on this page is the first factory in the country built for the mass production of small Diesel engines, to be sold in packaged home power plants. It is an excellent example of the characteristic simplicity of layout and exterior treatment found in Kahn's industrial work. The proportions of the building have been determined entirely by requirements of floor space and mechanical installation; the exterior walls consist of brick, clear glass, and translucent glass. The larger structure on the facing page is an extension to the La Grange Diesel plant, producing the special custom-built engines used in locomotives, ships, and other installations requiring heavy Diesels.



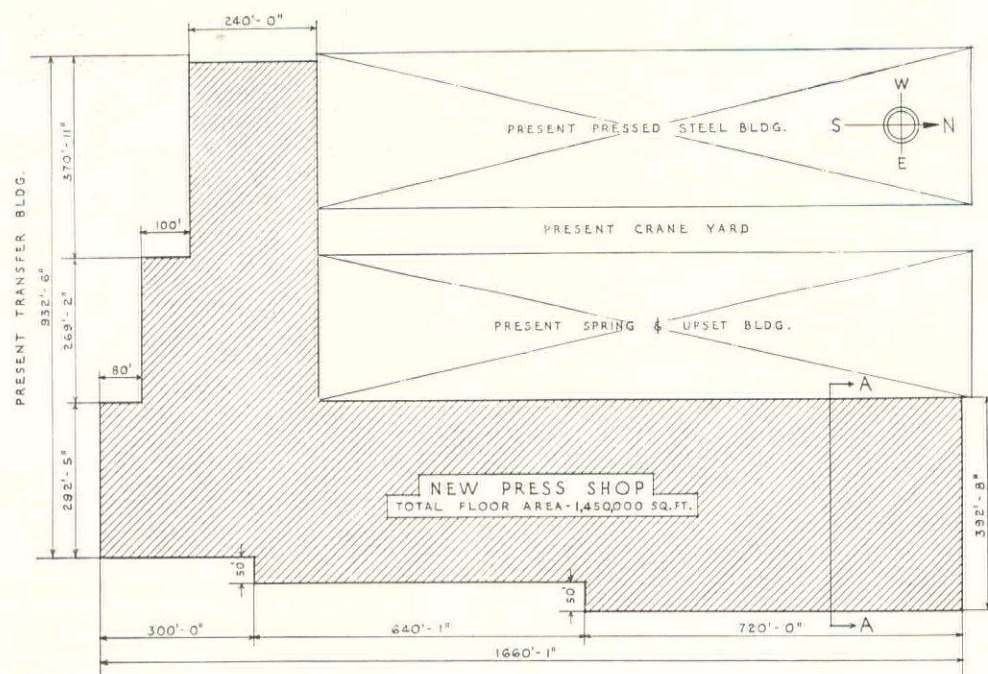
Chicago Arch. Photographing Co.

EXTENSION TO ELECTRO-MOTIVE PLANT, LA GRANGE, ILLINOIS

PRESS SHOP FORD MOTOR CO. RIVER ROUGE PLANT, DEARBORN, MICH



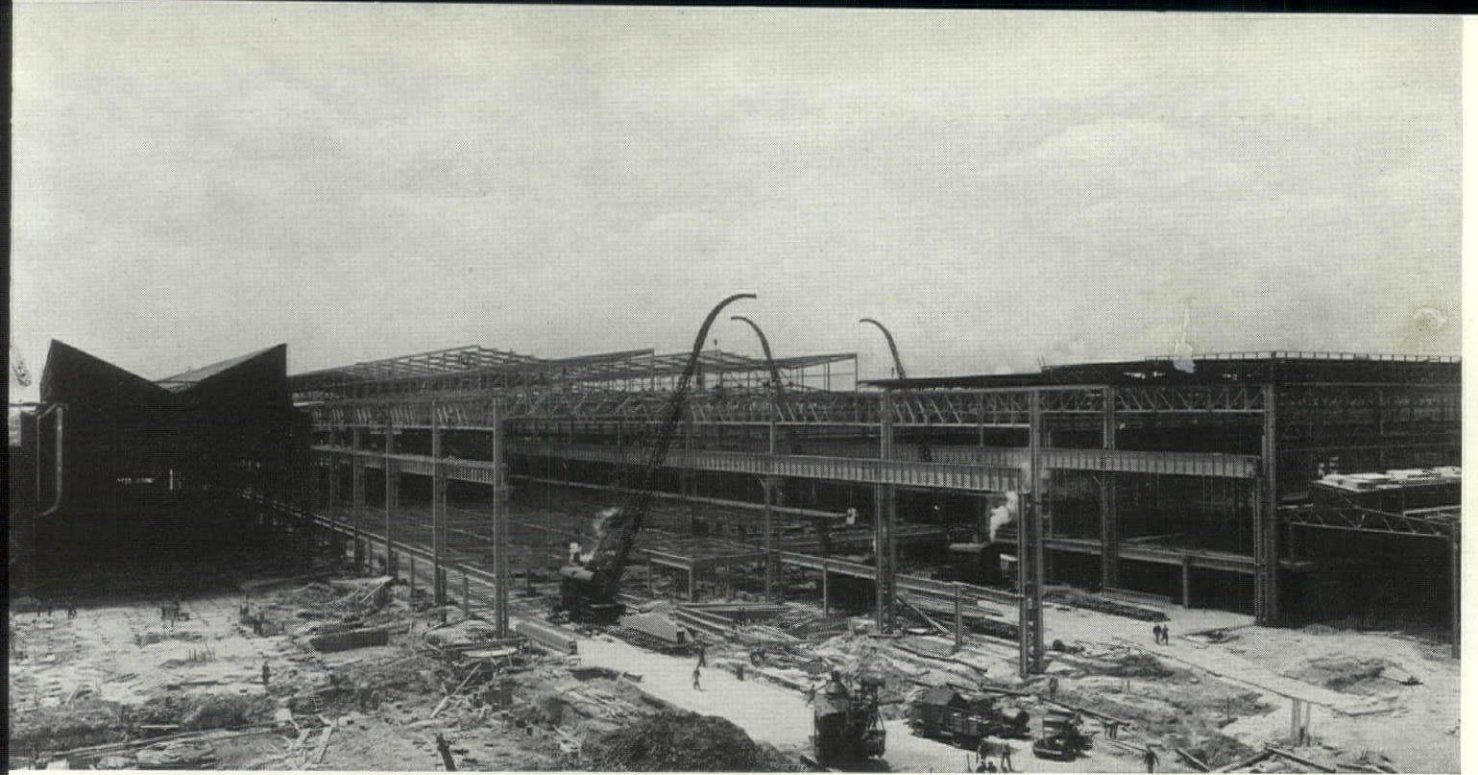
SECTION A-A



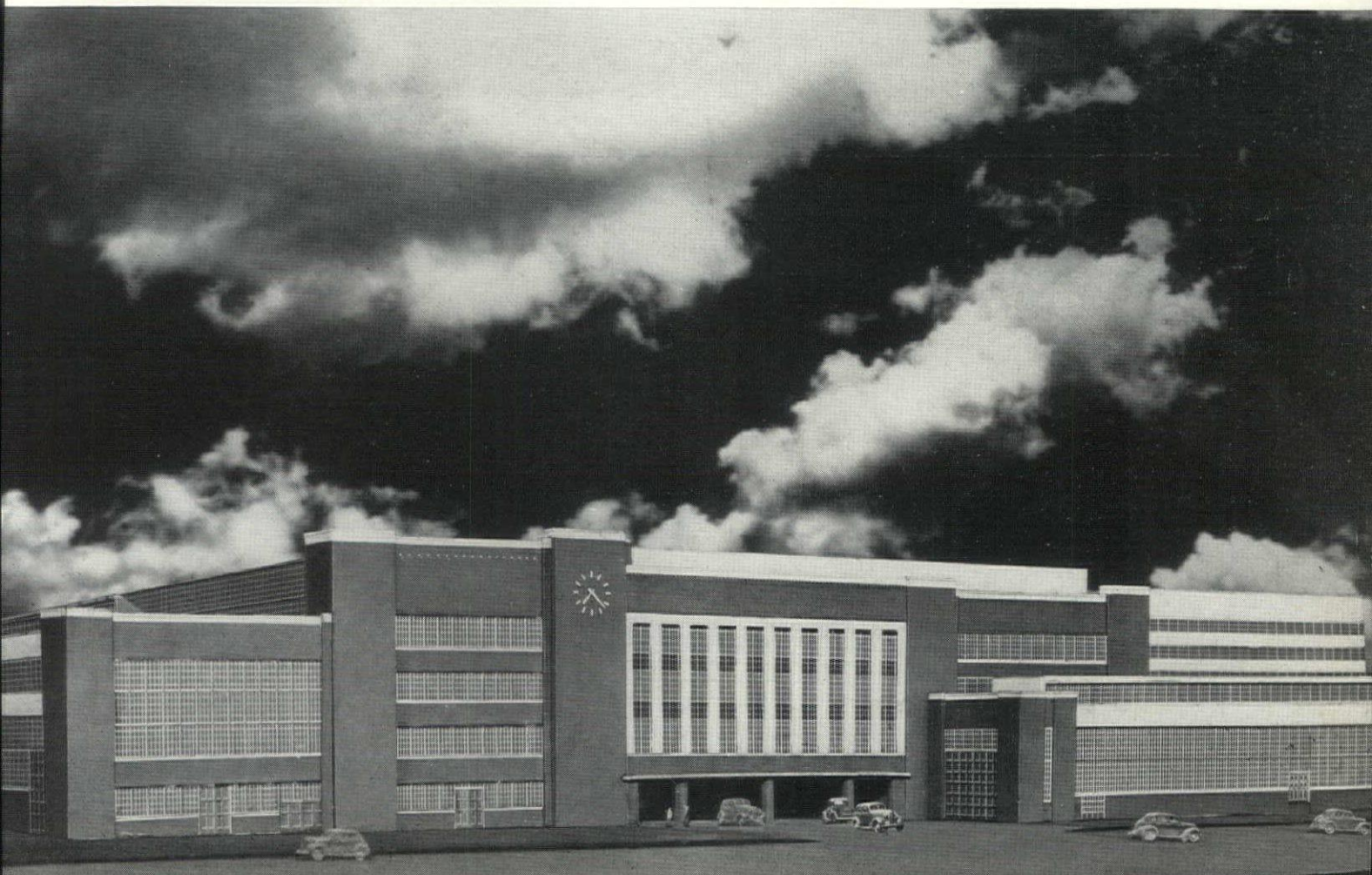
GENERAL PLAN



THE new press shop for the Ford Motor Company, now in course of construction, will be one of the largest industrial buildings ever erected. Almost a third of a mile in length, it encloses nearly a million and a half square feet of floor area, and the 47,000 tons of steel in the piles and superstructure formed the largest steel order ever given for a single building. One unusual feature of the building is the use of an elevated level for many of the presses, an arrangement designed to permit the use of conveyors on the ground level. Some of the floors for these presses were designed for a load of about a ton per square foot. The model on the opposite page shows one corner of the building.

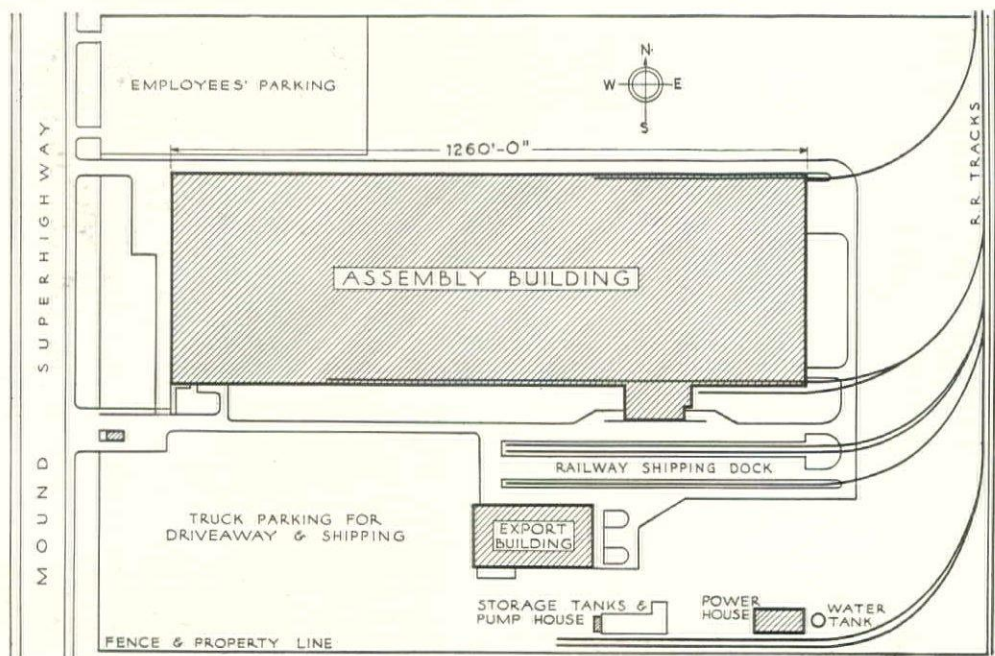


MODEL SHOWING SOUTHEAST CORNER





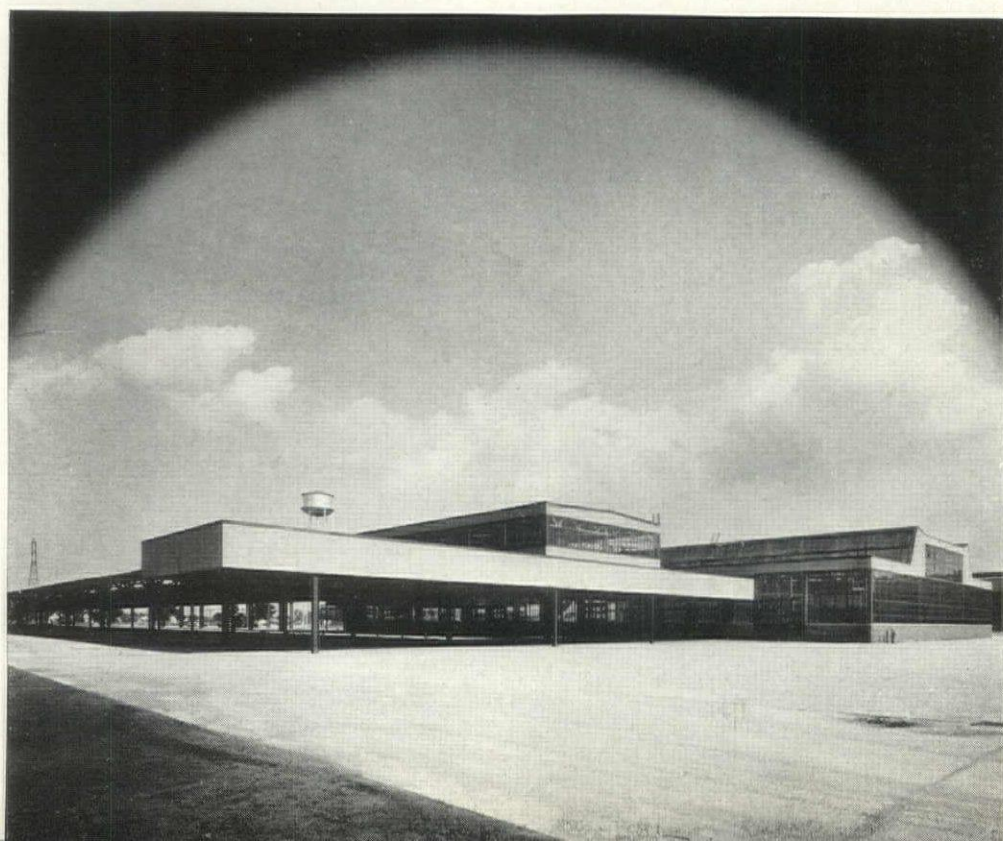
Hedrich-Blessing Photo



THE Chrysler truck plant is one of the Kahn organization's most successful designs, interestingly varied in mass and vigorous in treatment. Worthy of careful study is the plot layout at the left, with power plant and tracks so located that changes and additions to the plant can be made without disrupting the original scheme. The export building, from which the cars are shipped, is used for final inspection and adjustments.

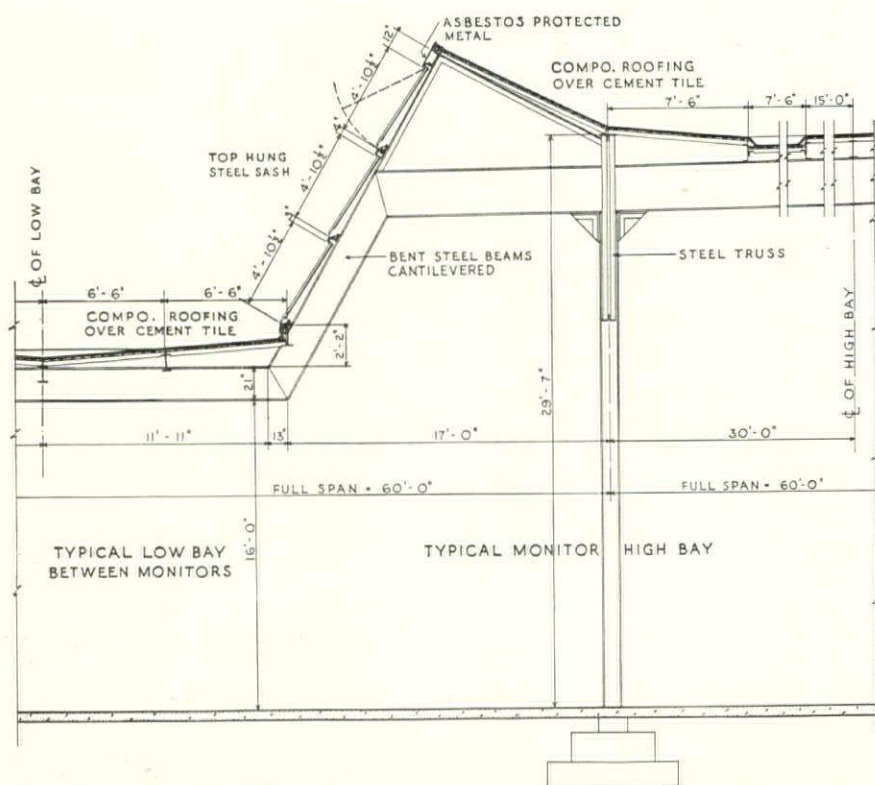


EXPORT BUILDING



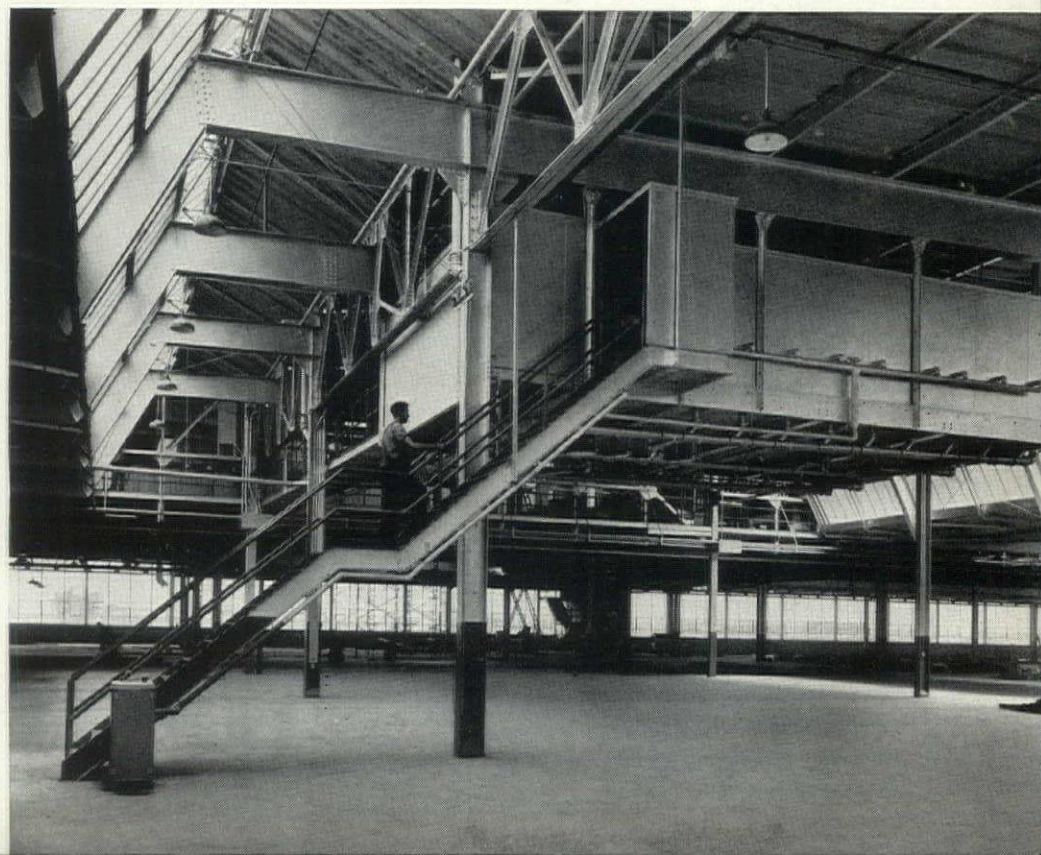


Hedrich-Blessing Photos



DETAIL OF CANTILEVER
ROOF BEAM CONSTRUCTION
SECTION THROUGH BAYS

AN outstanding feature of the Chrysler plant is the size of the interior bays, which measure 40 x 60 ft. Due to the use of cantilever roof beams no more steel is required than would be ordinarily required for a 30 x 40 ft. bay. The upper right hand photograph shows not only the cantilever design, but also the combined use of riveting and welding, a technique adopted frequently by Albert Kahn engineers. Whether a connection is welded or riveted depends entirely on which is more economical. Below is one of the toilet rooms, suspended from the roof beams, leaving the floor almost entirely unobstructed. The illustration on the opposite page shows the evenness of lighting possible with properly designed monitors. The monitor used here is approximately four times the width of the alley.





CHEVROLET MOTOR AND AXLE DIVISION, GENERAL MOTORS CORP.,
TONAWANDA, NEW YORK

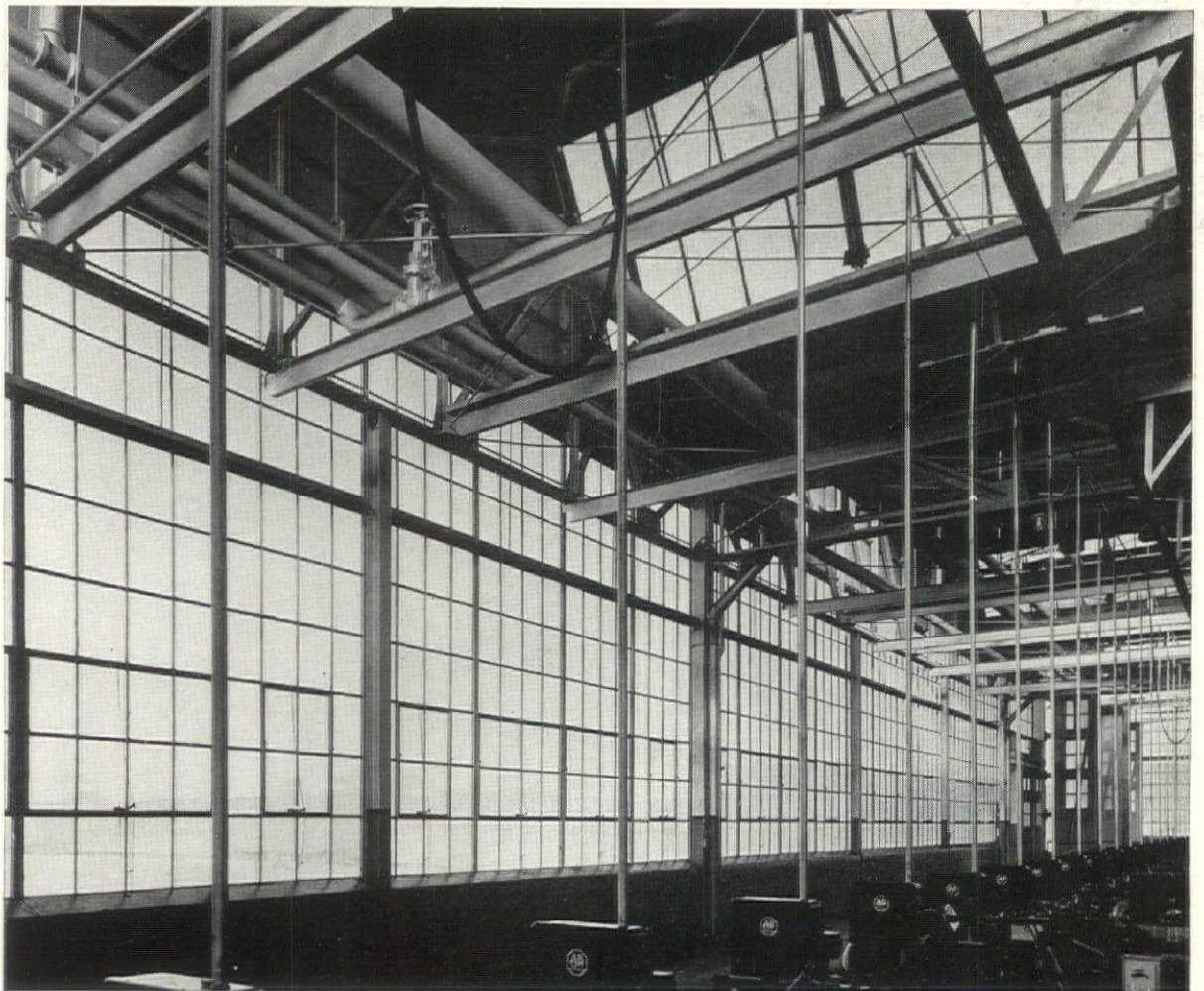


Robert M. Damora Photos



Robert M. Damora Photos

SUCH photographs as the above and the one on page 138 show to what degree of excellence the best industrial buildings have arrived. There is a consistent modern architectural expression here, and complete harmony between building, mechanical appendages, and the machines within. It is also worth noting that much of the effect is due to the extreme precision of workmanship, something on which the Kahn office is particularly insistent, as its experience has been that ideal working conditions, attractive appearance, and low initial and maintenance costs can be attained with no added expense. The high quality of execution merely requires constant and rigorous supervision.





CHEVROLET PLANT
TONAWANDA, N. Y.

CAFETERIA



GENERAL OFFICES



LOCKER ROOM

REPORT OF THE JURY FOR THE COMPETITION FOR AN ART CENTER FOR WHEATON COLLEGE

In making its awards, the Jury kept certain criteria in mind:

- 1) Use of site: relation to topography
to existing trees
to the lake
orientation for view
for light, etc.
accessibility from college
from the road (for service)
condition of land not used (as natural park
or for future building)
- 2) Suitability of the building in size and character to a small college in a rural community, as suggested in the Program.
- 3) Relation of the principal parts of the building to access
to the library
to each other
- 4) Ease of circulation and control
- 5) Provision for the needs of each department as indicated in the Program

The majority of the Jury did not find a complete solution in any one of the designs submitted, but it recognized that with the simplified Program and without consultation with the client, it was perhaps impossible for a competitor to achieve a full solution. As the competition was held for the selection of an architect and not for the selection of a design to be built, the majority of the Jury believed that it should give the awards to designs which:

- 1) showed the best understanding of the problems involved, and
- 2) showed proof of the designer's ability to solve these problems.

The complicated nature of the problem excluded a strict point-by-point comparison between all the designs submitted. Inevitably some were stronger in some aspects, weaker in others. Judgment had to be based on composite indices.

A minority of the Jury disagreed with some of the awards and with the reasons of the majority for making them. None of the decisions was unanimous—many were closely contested.

One member of the Jury disagreed on the following general grounds, in addition to the expectable differences as to the relative merits of some entries:

First, that still more time might have been desirable for full consideration of all meritorious entries, considering the time and effort expended on them by the competitors, and, also, that in full justice to all contestants entries should have been judged as they stood, without allowance for defects which, in the opinion of the Jury, could be corrected. Since such indulgence cannot be evenly extended to all entries, this juror felt that an arbitrary aspect was imposed upon a part of the proceedings.

PRIZE: RICHARD M. BENNETT AND CALEB HORNBOSTEL, NEW YORK

This well studied and practical plan was awarded first prize despite the serious handicap of unorganized elevations, seemingly the result of last minute rush.

The building is skillfully adjusted to its site, fitting the terrain and making a pleasant feature of the point between the two lobes of the pond. Little grading will be needed and only one large tree will have to be cut. Most of the rooms command a pleasant view. College and service access are both easy, the latter well concentrated with one entrance for all heavy deliveries.

Library: This, the most used room in the building, is closest to the college and immediately adjacent to the Music and Art Departments which will use its books, photographs and records con-

stantly. It can be shut off from the rest of the building for use at night. An unpierced wall excludes sounds from the music and practice rooms.

Art Department: The studios have the necessary north light on the long side. The layout of the exhibition galleries allows variety in the arrangement of exhibitions; the long gallery opens out agreeably to the terrace and view, and its use as foyer to the auditorium not only saves space, but displays the exhibitions where they will be seen by a large public.

Music Department: All provisions seem adequate—practice rooms reasonably isolated, but the necessary sound insulation of the floor may be expensive.

Drama Department: The shape of the large auditorium assures good visibility and acoustics, and the relation of the two stages and workshop is ingeniously economical as an answer to the program, but should not be taken as a model solution to the usual problem. A few adjustments are needed, for the stage is perhaps too large and the stage house too low, and the space for equipment at the sides of the stage opening inadequate. Also, there is not a sufficient number of exits. Very economically the back wall forms a cyclorama, most important single item in permanent stage equipment.

General: Space is handled economically throughout, and the building is fairly compact; the total volume is considerably less than that of most of the entries. Circulation and the combined entrance arrangement are excellent. The building can readily be subdivided for partial use by different departments, making control for evening use simple. The small auditorium is conveniently placed for use either for small college functions or for the class-lectures of the Music and Art Departments, and is well shaped for the showing of slides or films.

As a whole the scheme shows a real grasp of the essential problem, and presents a simple arrangement which would be easy and pleasant to use. Not all of the details have been worked out and the elevations need further study, but the majority of the Jury was convinced that the designers could carry out a building which would well fulfill the complex needs of the three departments.

DESIGN PLACED SECOND: WALTER GROPIUS AND MARCEL BREUER, CAMBRIDGE, MASS.

The simple authoritative clarity of this scheme, and the brilliant esthetic discipline of its working out, made it place a close second to the winner.

The location of the building saves the maximum of the setting intact, uncut by roads. The service drive is short. Little grading would be needed and only a few good trees would be lost.

The provisions for the Music and Art Departments are compact and convenient, well oriented for light and sound insulation, handy to the main block, but less so to the frequently used library and small lecture room. The large, well lit and handsome galleries are one of the most attractive features of the scheme, but expensive to heat and keep clean. The theater arrangement is workable and has many interesting features, but, as in a majority of the designs submitted, the stage house is low. (The Jury felt that its height should have been specified in the Program.)

The whole has been well thought out from the practical point of view except, perhaps, some of the circulation (remoteness of library, access to small auditorium through long glazed passage, service access under passage ten feet high). Some jurors questioned the suitability of the unquestionably handsome facades to the rigorous New England climate and the informal character of the college.

DESIGN PLACED THIRD: PIERRE BÉZY, JOHN W. STEDMAN, JR., PAUL WIENER

The building is pleasantly located close to the lake, but with the service drives it splits the site in two. Well adapted to terrain and lake, the large terrace would be useful only for a short part of the college year. The corridor opening on it commands the best view.

The relationship between departments is intelligently studied; the general library could be used separately at night, and the half-separate music library seems practical. Circulation to galleries and small auditorium from classrooms was found needlessly devious.

The forestage takes up space and makes the main stage too remote; the side stages are of doubtful value.

Natural light has been used advantageously throughout.

DESIGN PLACED FOURTH: ALEXIS DUKELSKI

This was one of the most ingeniously compact schemes submitted and developed particularly well in detail, though ignoring, perhaps, the character of the site. Questioned were the lack of direct access from the parking space to the auditorium and the confusing double entrances from court to auditorium. West-facing studios would not be desirable. Probably the most practical theater plan submitted.

DESIGNS PLACED FIFTH: PERCIVAL GOODMAN

The disposition of parts within the building itself is convenient, clear and practical (except for the corridor-like gallery and the useless ramp). The placing on the lot gives much of the best view to the service court and parking area. The auditorium, less regularly used, is more convenient to the college than the much more frequently used library. The elevations are plainly derived from familiar modern precedents.



Paul Dorsey

Prize: RICHARD M. BENNETT (right) and CALEB HORN-BOSTEL, New York. Studied at Harvard and Ecole des Beaux-Arts; at present employed in the offices of Edward D. Stone and Norman Bel Geddes

LYNDON & SMITH

Though taking little account of the site, this was one of the most workable solutions submitted. Well thought out and conscientiously studied in the whole and in detail—it is well disciplined. Some jurors found the elevations dry; others found them quite appropriate.

EERO SAARINEN

The handsome elevations were found suitable in scale and general character. The plan seems stretched out and the fronting of the blank auditorium walls to the lake and view undesirable. The library is unnecessarily remote from the college.

There is great variety in the designs given the other awards. None seemed to the majority of the Jury to show as complete grasp of the problem as the first two, although some surpassed them in the treatment of individual features. The level of quality was unusually high for a competition of such size (252 designs submitted) and the Jury regrets that more awards could not be made to the many excellent projects submitted.

The Jury praises Wheaton's clear common sense in holding an open competition for its new building, and its acceptance of contemporary architecture for the solution of contemporary problems, and it sincerely hopes that other institutions may follow its intelligent example, and give up their extravagant flirtation with the past.

Walter Curt BEHRENDT

John Wellborn ROOT

Edward D. STONE

Roland A. WANK

Stanley R. McCANDLESS

Esther Isabel SEAVER

John McANDREW, Chairman

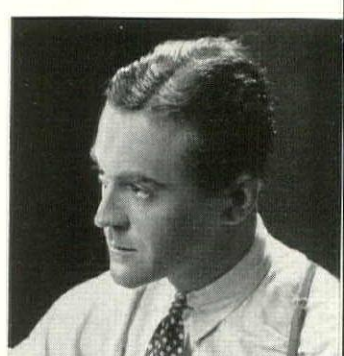


Mydan

Placed second: WALTER GROPIUS and MARCEL BREUER, recently appointed to the faculty of the Harvard Department of Architecture; formerly at the world-famed Bauhaus in Dessau.



Placed third: PIERRE A. BÉZY, JOHN W. STEDMAN, JR., PAUL LESTER WIENER, New York. Mr. Bézy studied at the University of Illinois and Columbia; Mr. Stedman, at Columbia; Mr. Wiener in Leipzig, Berlin and Vienna. Mr. Stedman has his own practice, and the others have been associated since 1937.

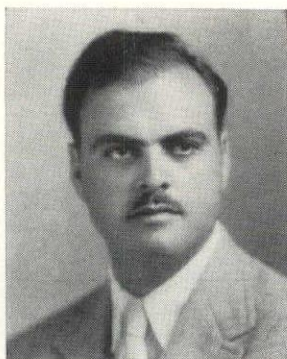


Placed fourth: ALEXIS DUKELSKI, New York. In America since 1921; studied M.I.T., now in practice with Charles Shilowitz.



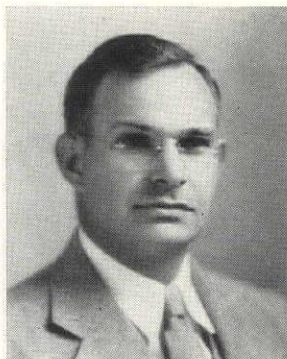
Associated News

Placed fifth: PERCIVAL GOODMAN, New York. Paris Prize winner; engaged in independent practice since 1929.



Spellman

Placed fifth: MAYNARD LYNDON and EBERLE M. SMITH, Detroit. Both studied at University of Michigan, now in practice. Known for their excellent modern school buildings.



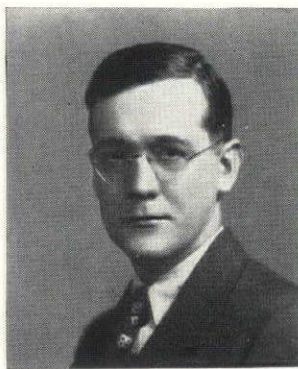
Spellman



Placed fifth: EERO SAARINEN, Bloomfield Hills, Michigan. Studied abroad and at Yale. Architect and town planner.

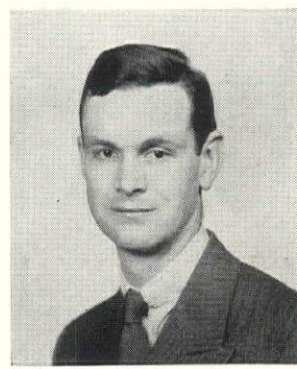


Mention: ROBERT A. GREEN and GORDON BUNSHAFT, New York. Both at present employed in office of Skidmore and Owings. Mr. Green studied at New York University, Mr. Bunshaft at M.I.T.



White

Mention: ROBERT T. HANDREN, New York. Studied at New York University, member of the firm of Ott and Handren since 1936.



Mention: CARTER EDMUND HEWITT, Peoria, Ill. Studied at Princeton, now engaged in independent practice.

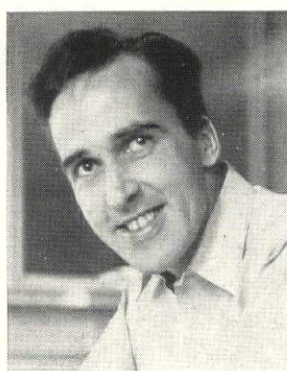


Bachrach

Mention: GEORGE HOWE, Philadelphia. Former member of Mellor, Meigs, and Howe. Designer of a number of distinguished modern buildings.



Mention: RICHARD J. NEUTRA, Los Angeles. Born in Vienna. Well-known for his modern houses and school designs.



Mention: G. HOLMES PERKINS, FRANCES W. HARTWELL, associate, Boston. Mr. Perkins studied at Harvard; Mrs. Hartwell is at present employed in his office.



Roushon



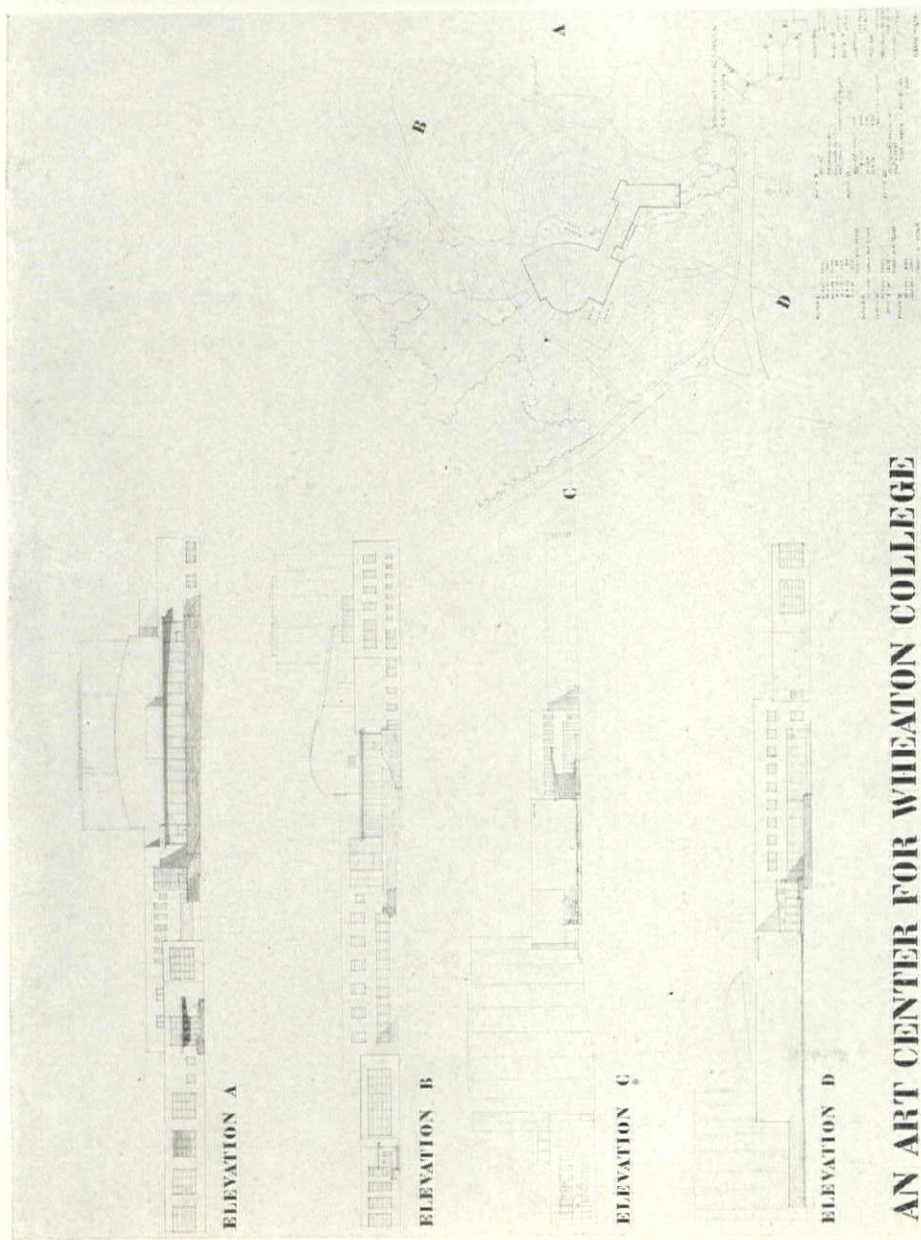
Mention: JOHN B. RODGERS, WILLIAM T. PRIESTLEY, JR., CARL F. BRAUER. Rodgers and Priestley are in practice in New York, both studied at Princeton and later at the Bauhaus and under Mies van der Rohe. Carl Brauer studied at Princeton, has been employed in various offices in New York.



Kazanjian

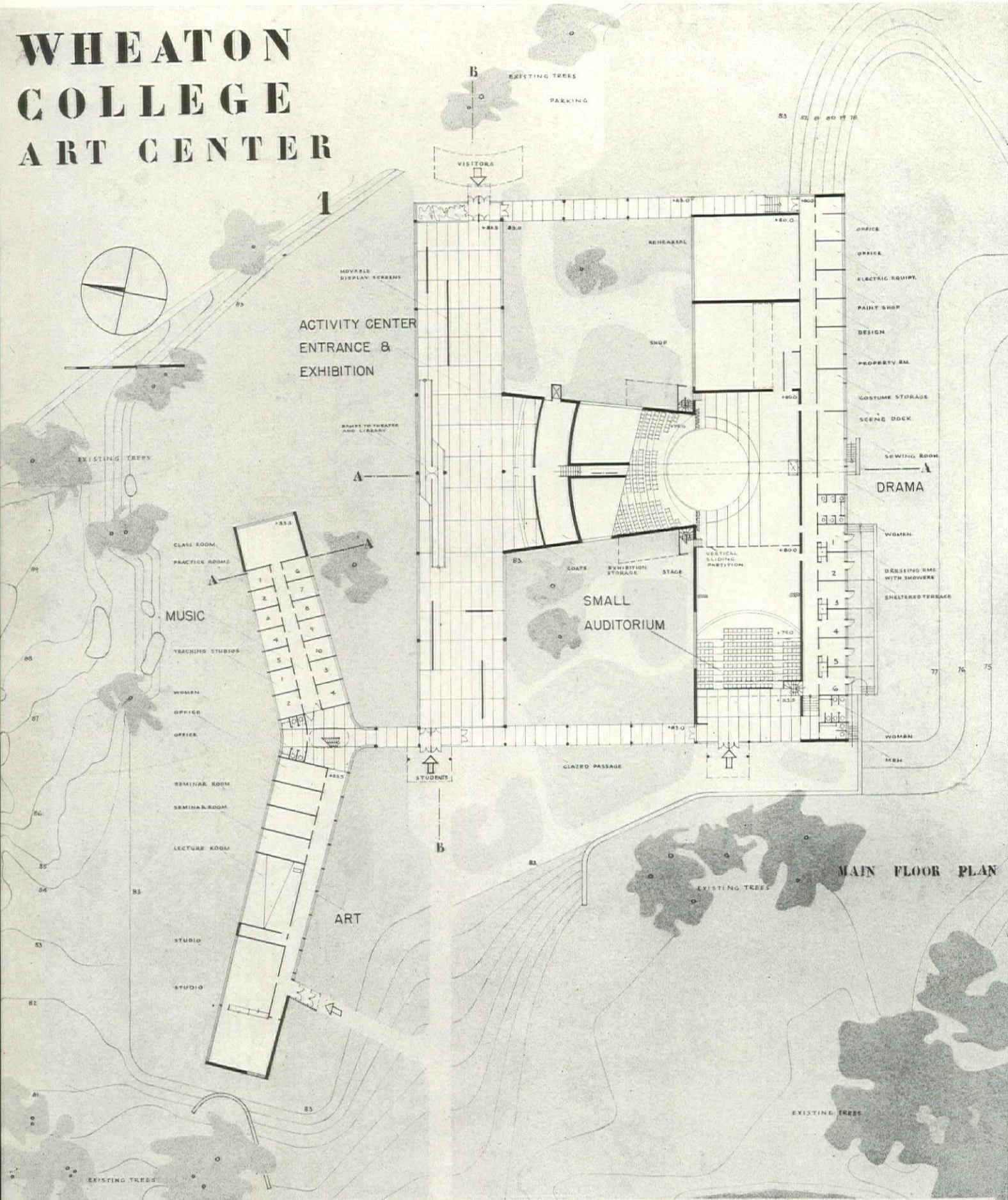
Note: It is regretted that due to the extreme lightness of many of the pencil drawings it was not possible to obtain better reproductions of the premiated designs.

For those in the vicinity of New York who wish to study the designs more closely, the Museum of Modern Art has announced that they will be on display in their galleries at 14 West 49th Street, New York, through Labor Day. The drawings will be available after this date to any museum, college, or other group which may wish to exhibit them. Address Department of Architecture, Museum of Modern Art.

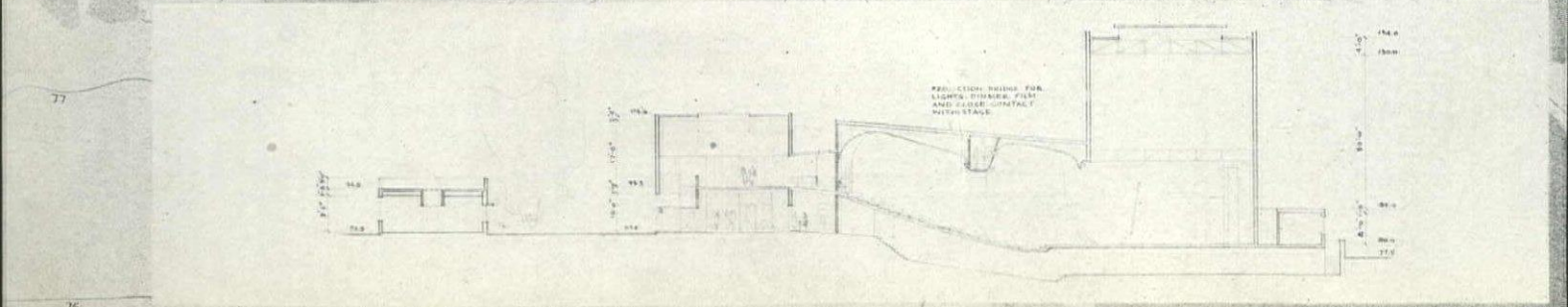


AN ART CENTER FOR WHEATON COLLEGE

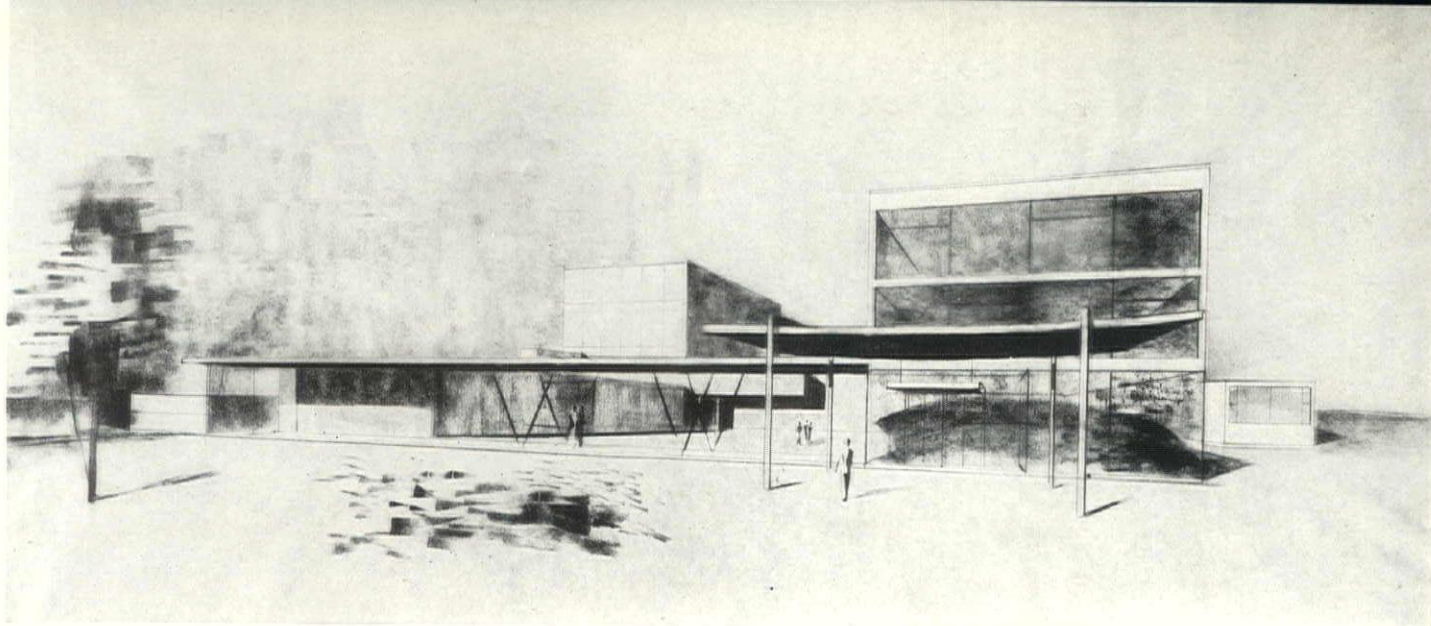
WHEATON COLLEGE ART CENTER



MAIN FLOOR PLAN

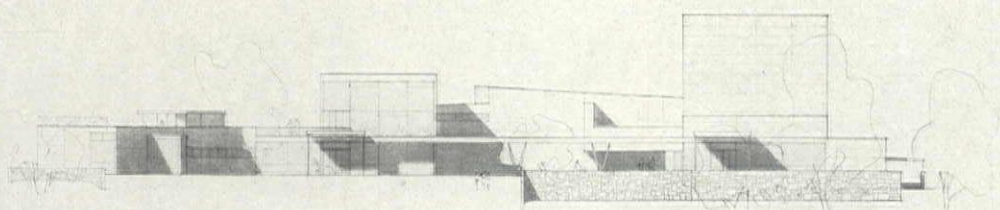


SECTION AA



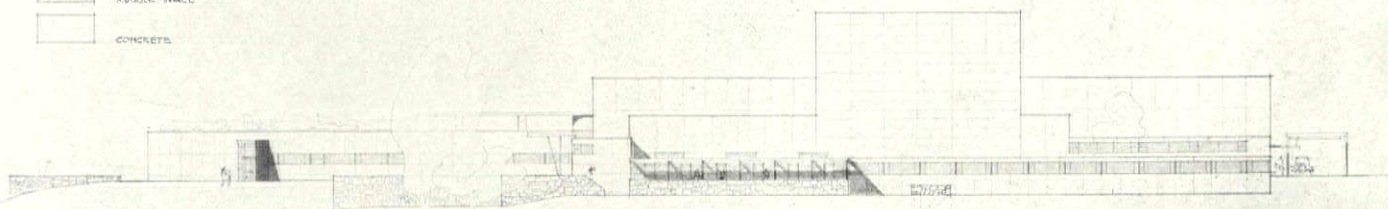
KEY - MATERIALS IN ELEVATIONS

- STONE VENEER
- RUBBLE WALL
- CONCRETE

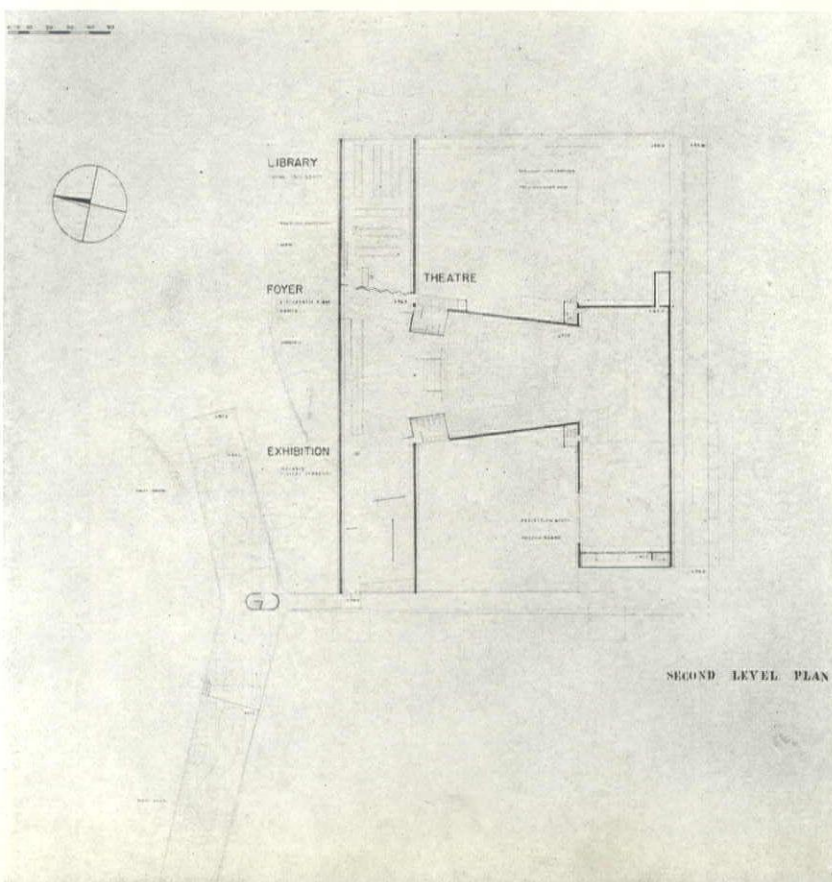


WEST ELEVATION

- STONE VENEER
- RUBBLE WALL
- CONCRETE

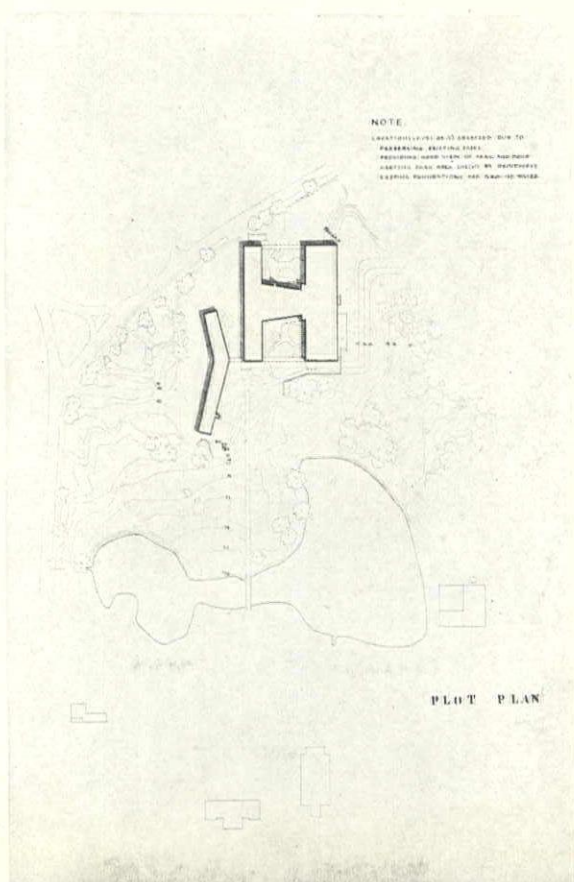


SOUTH ELEVATION

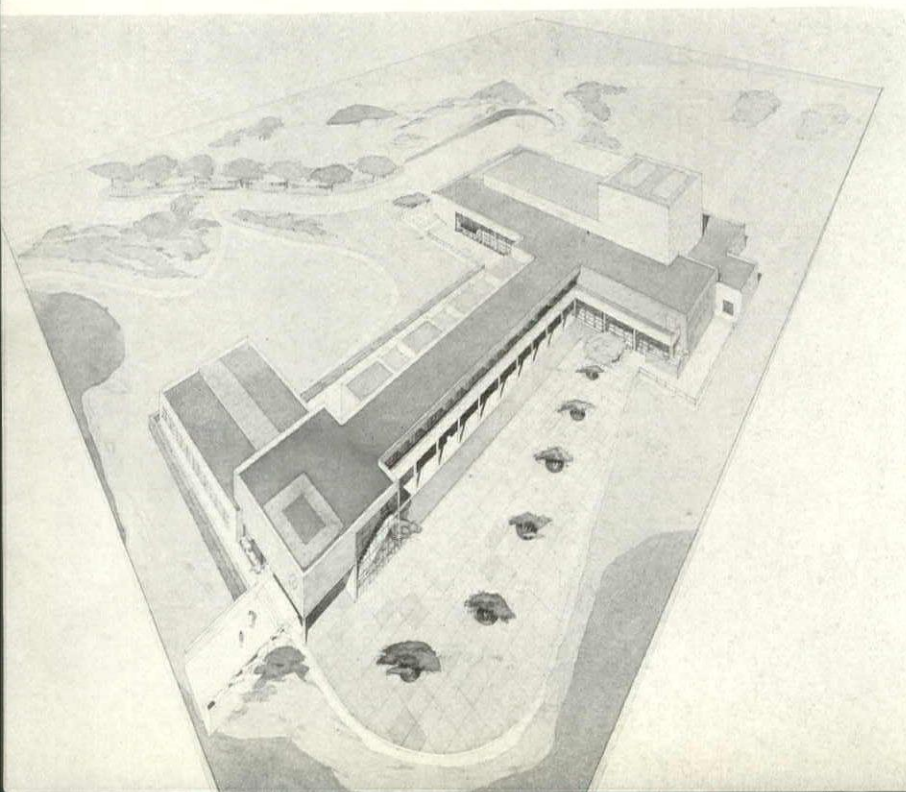


SECOND LEVEL PLAN

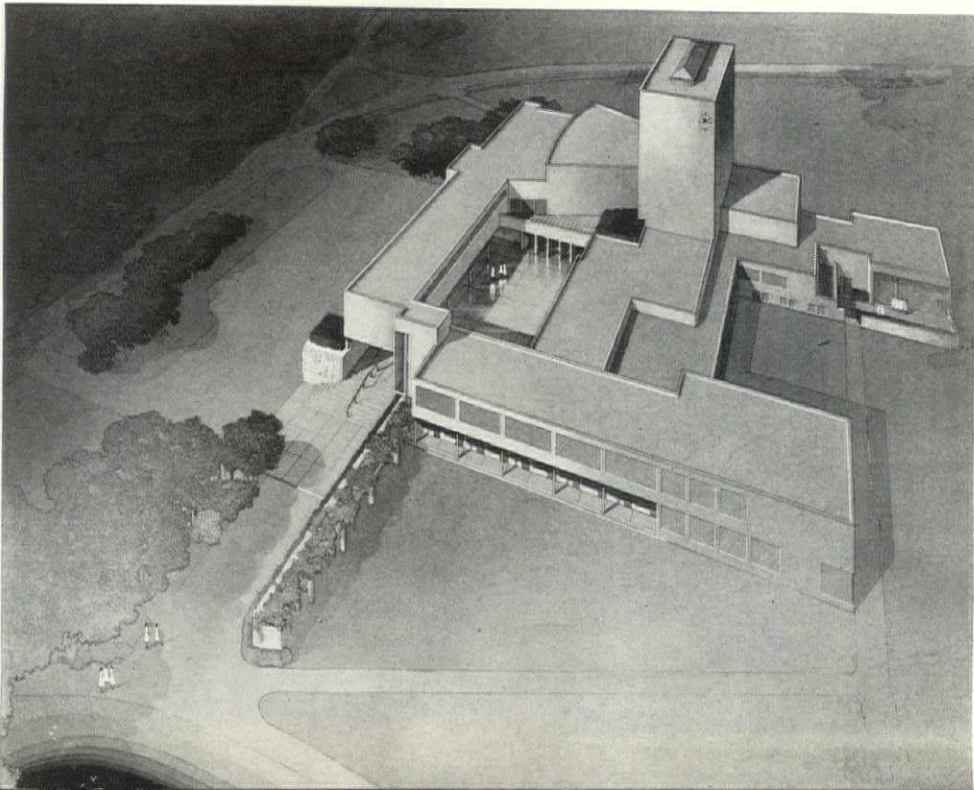
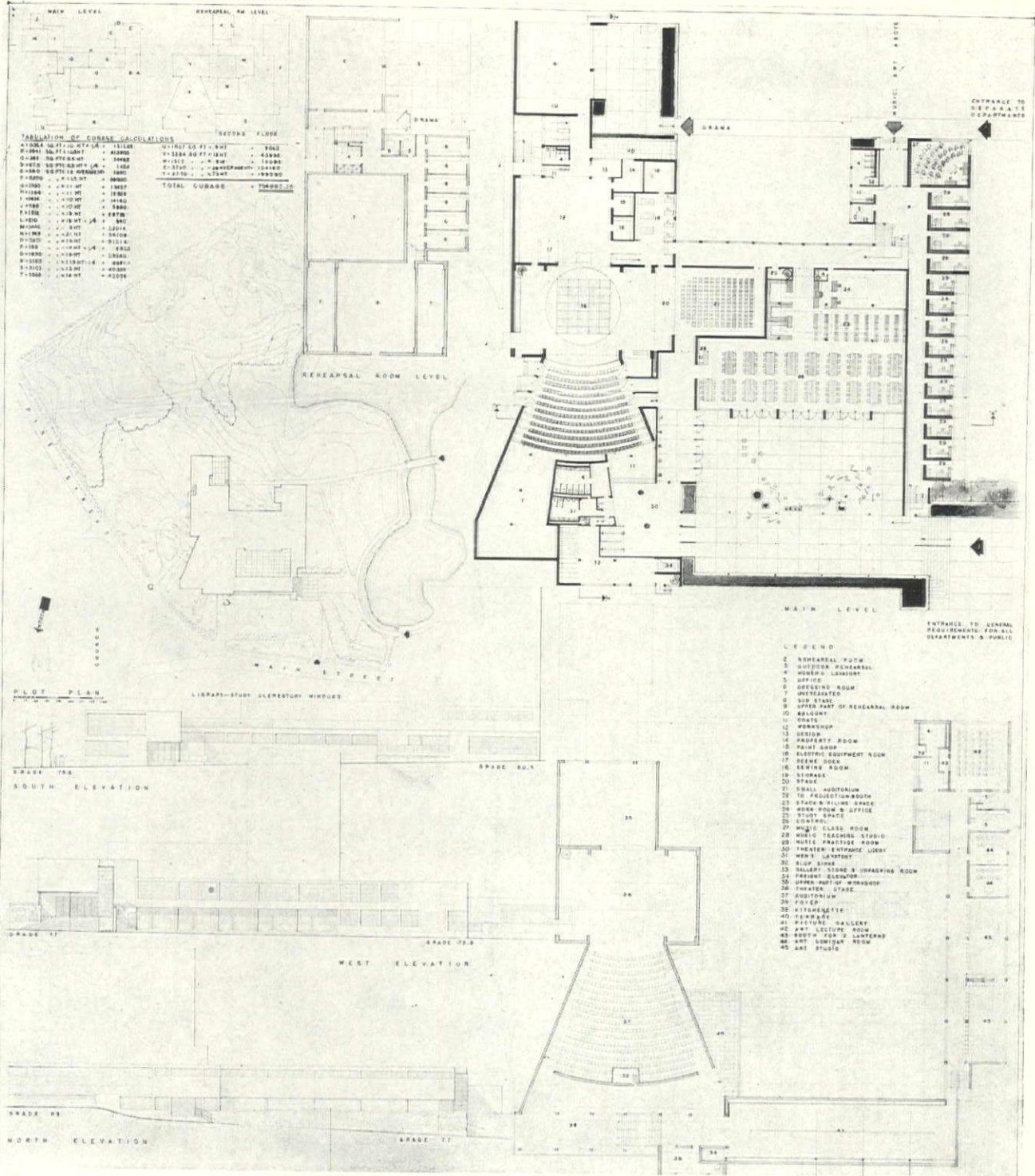
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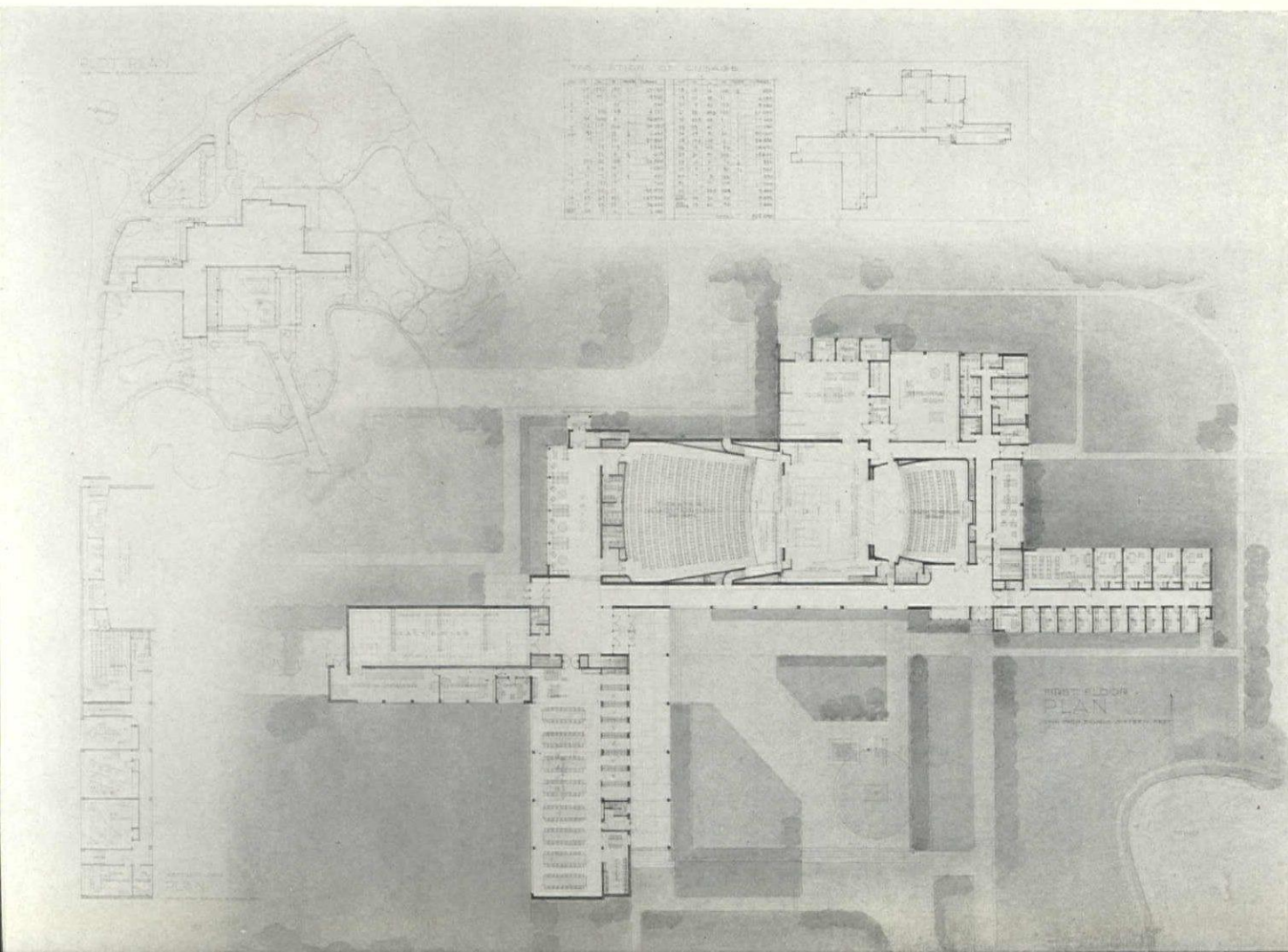
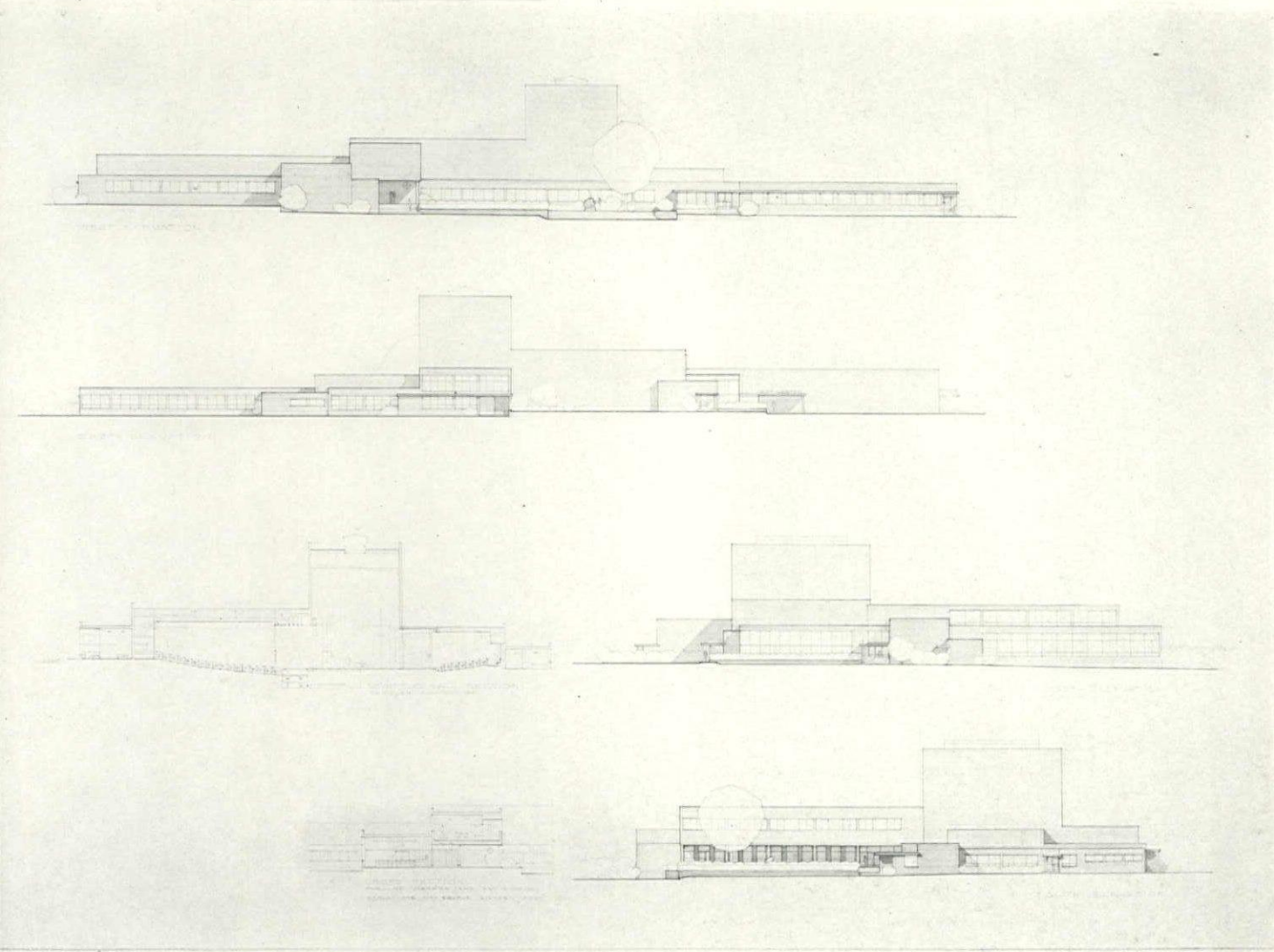
PLOT PLAN

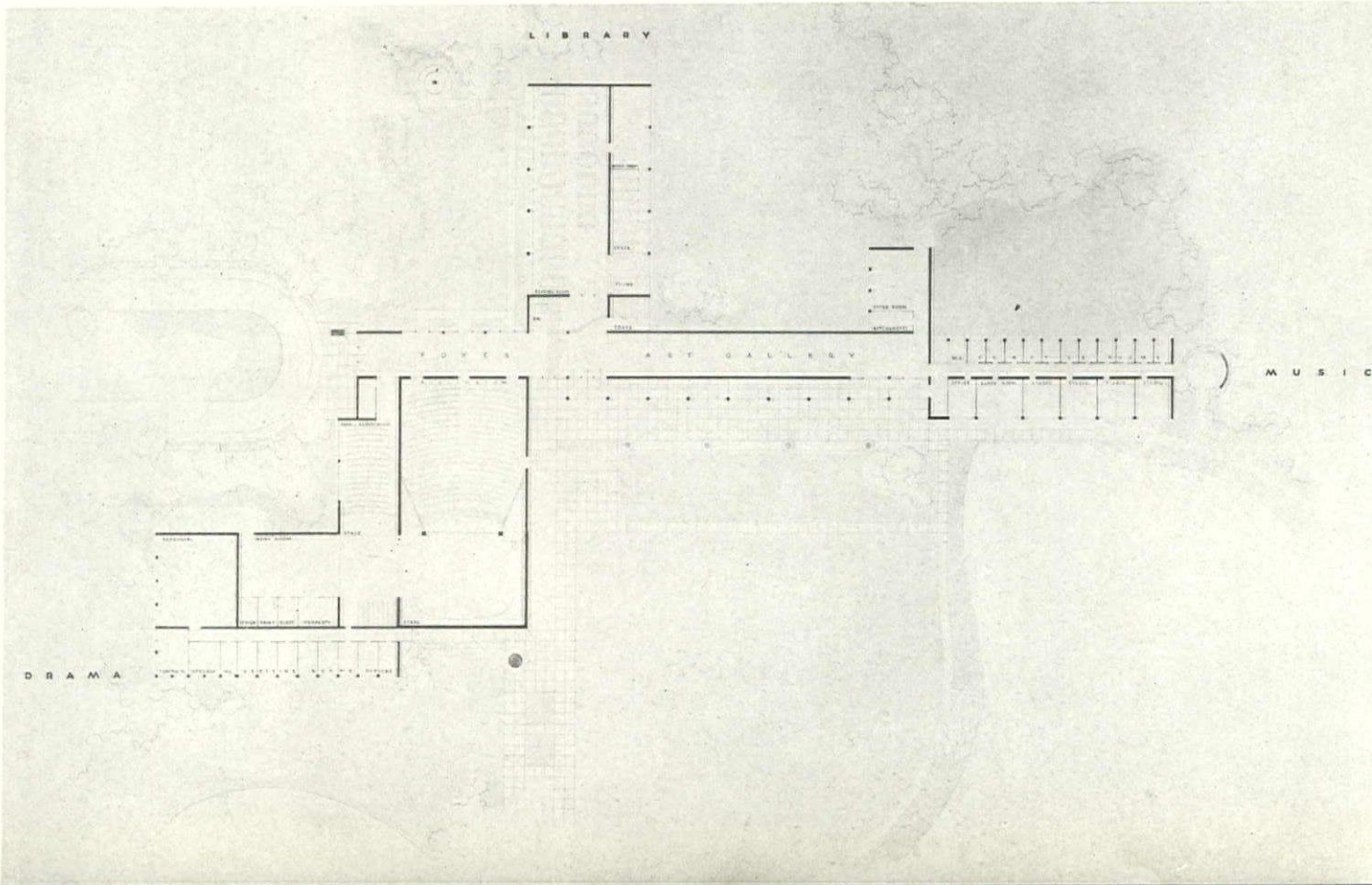
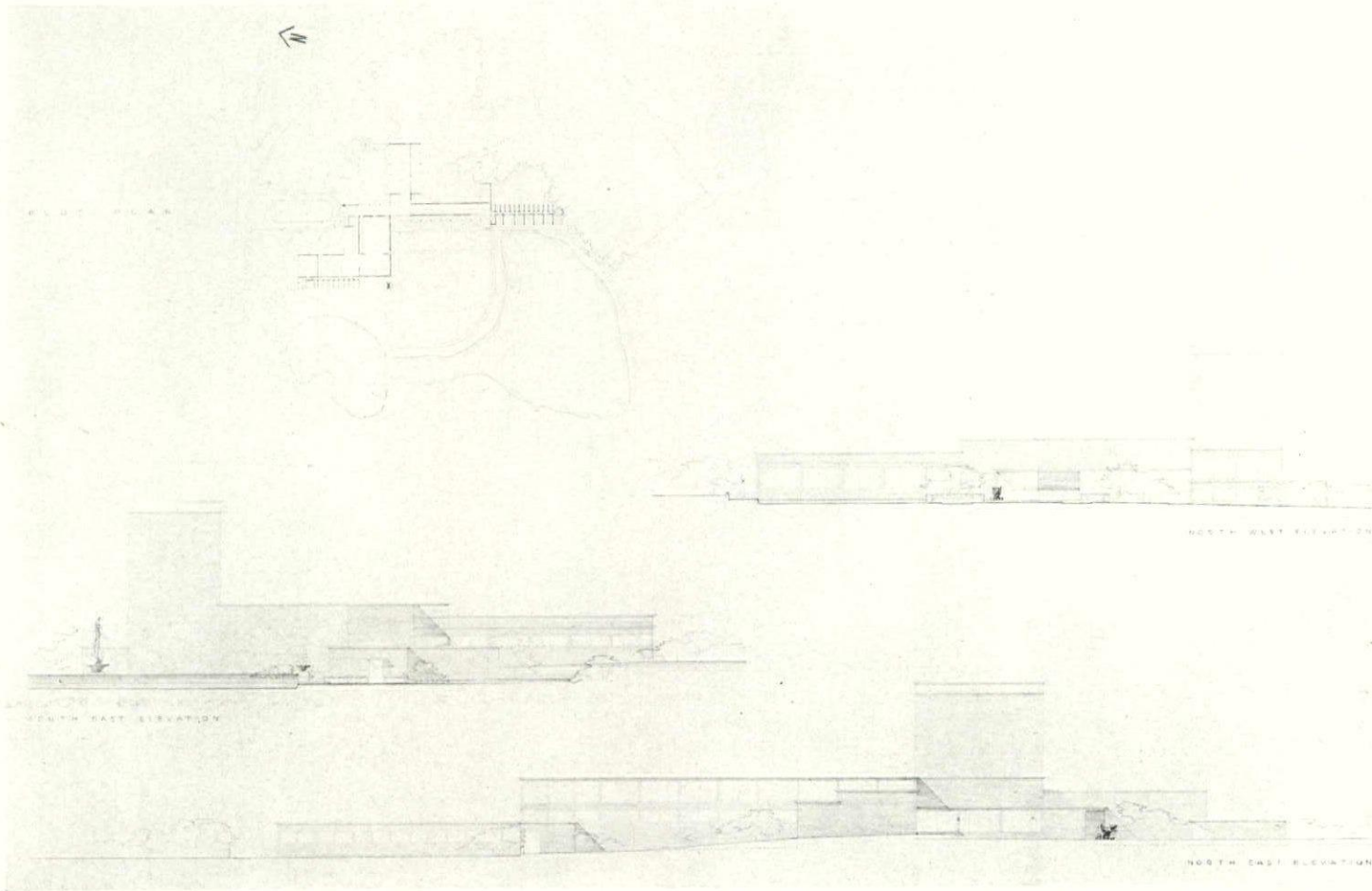
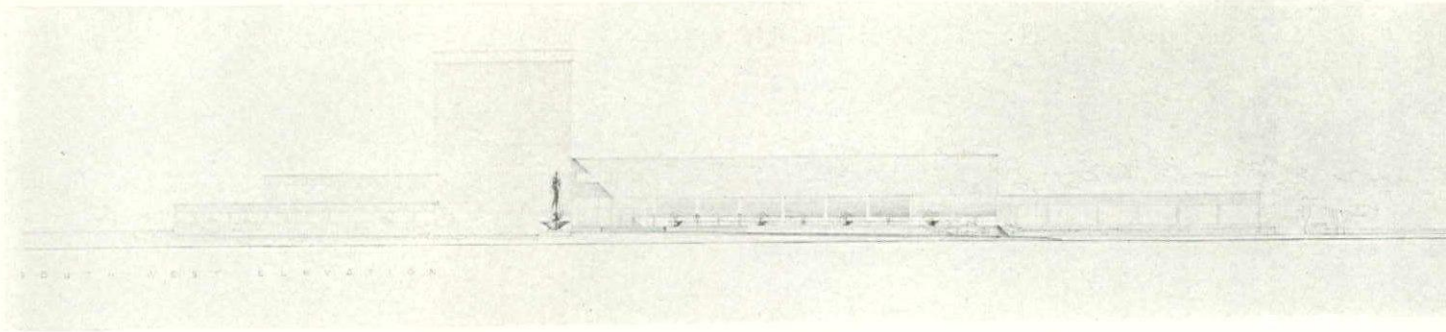


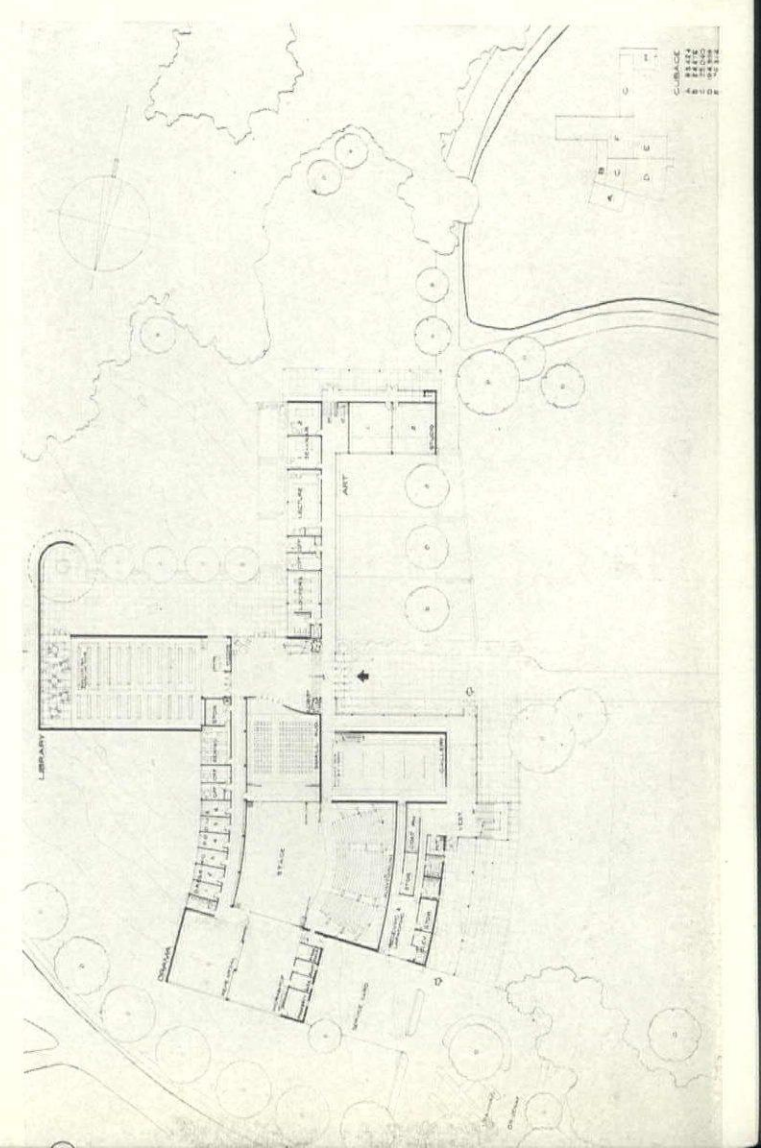
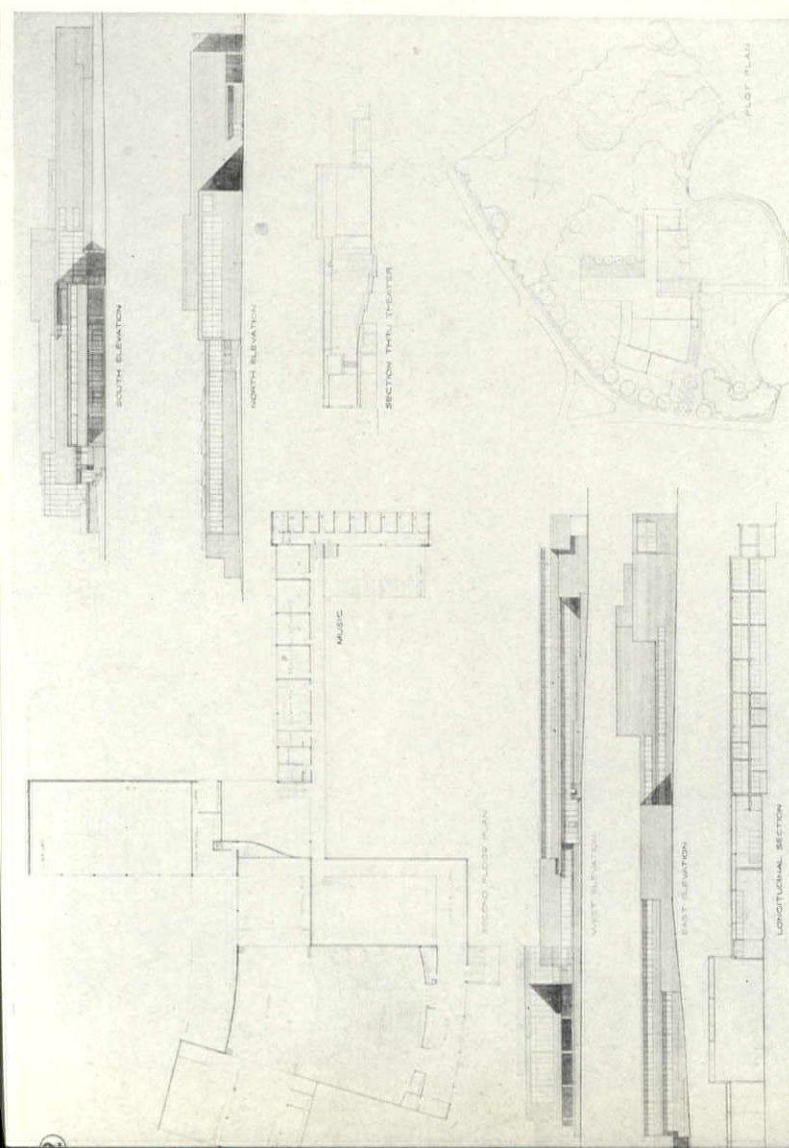
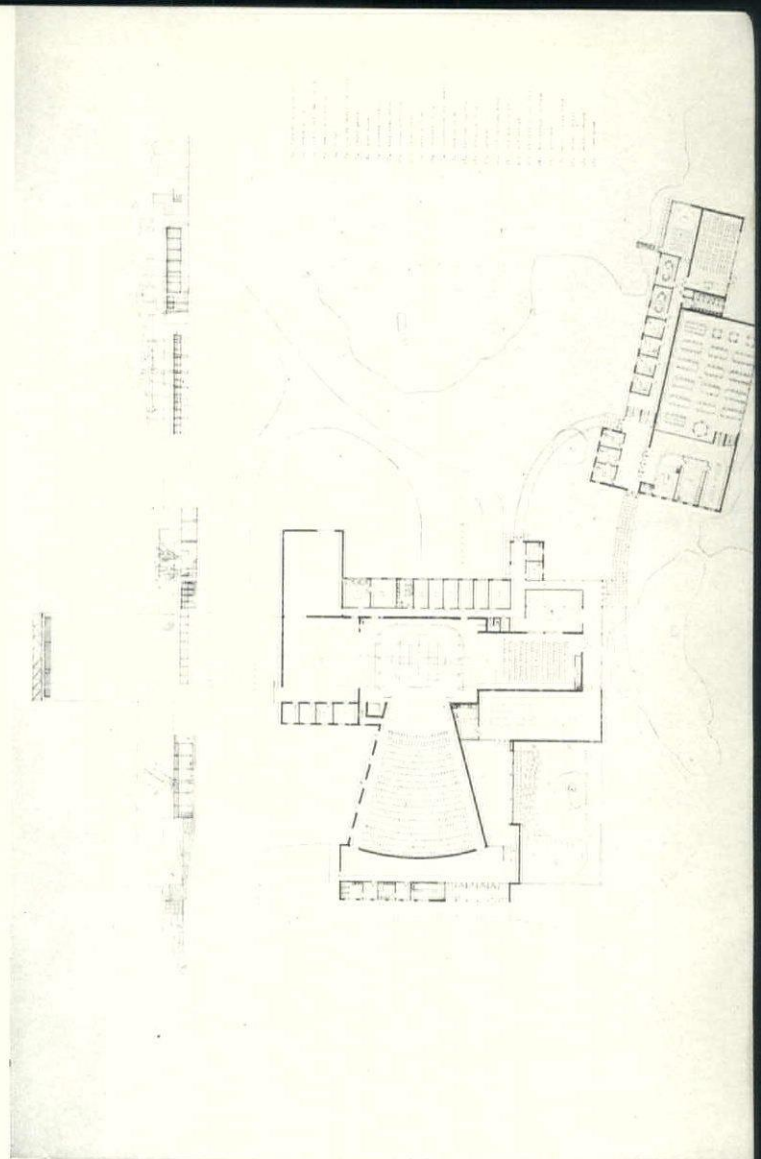
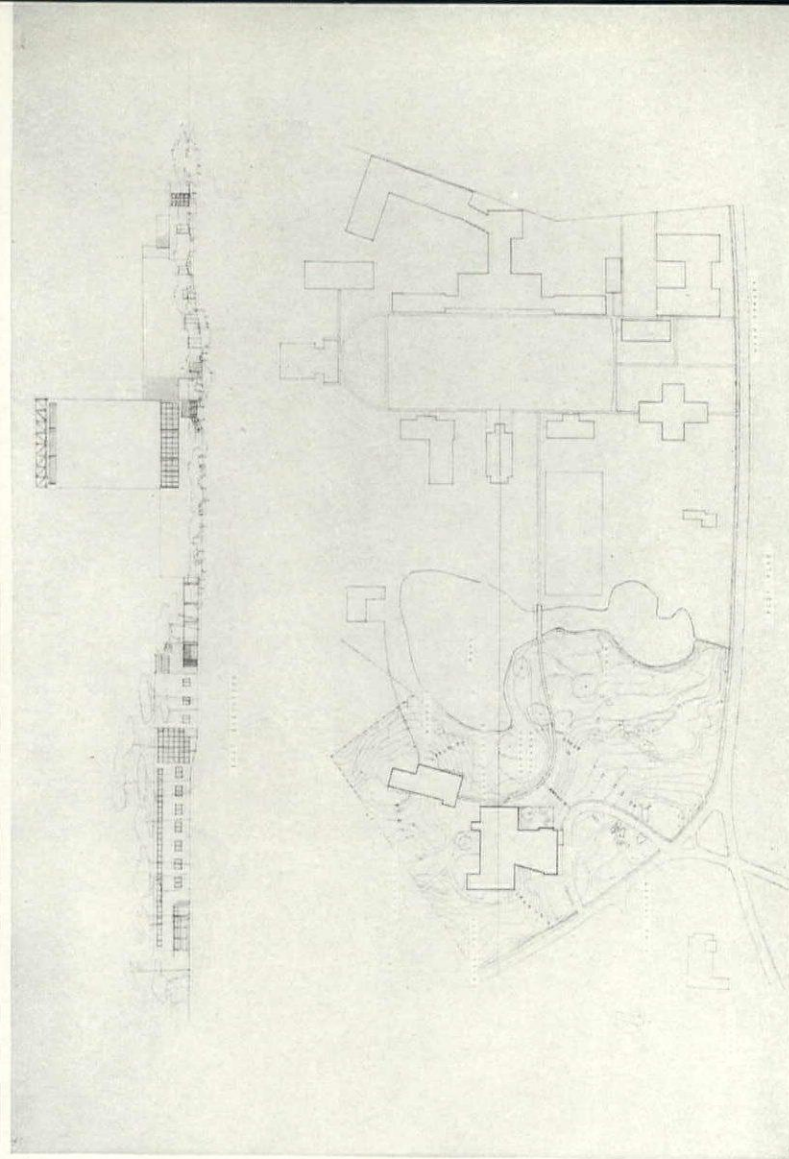
DESIGN PLACED **FOURTH: ALEXIS DUKELSKI** NEW YORK, N. Y.



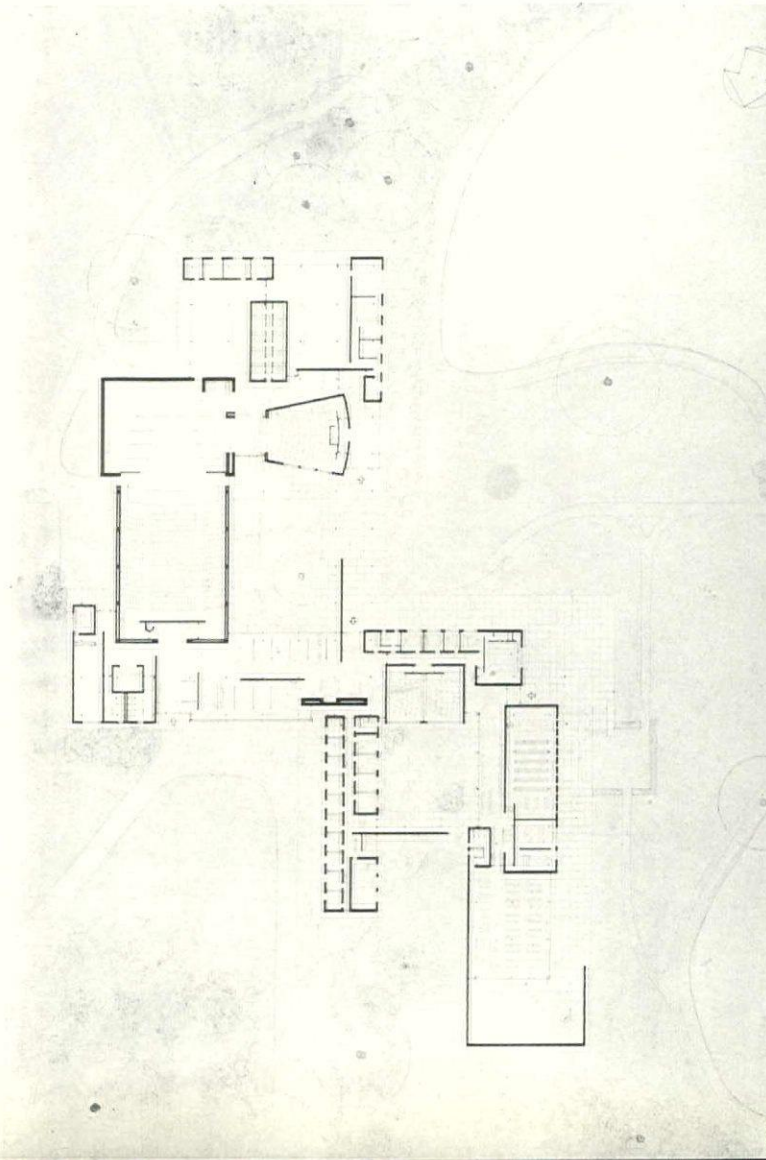
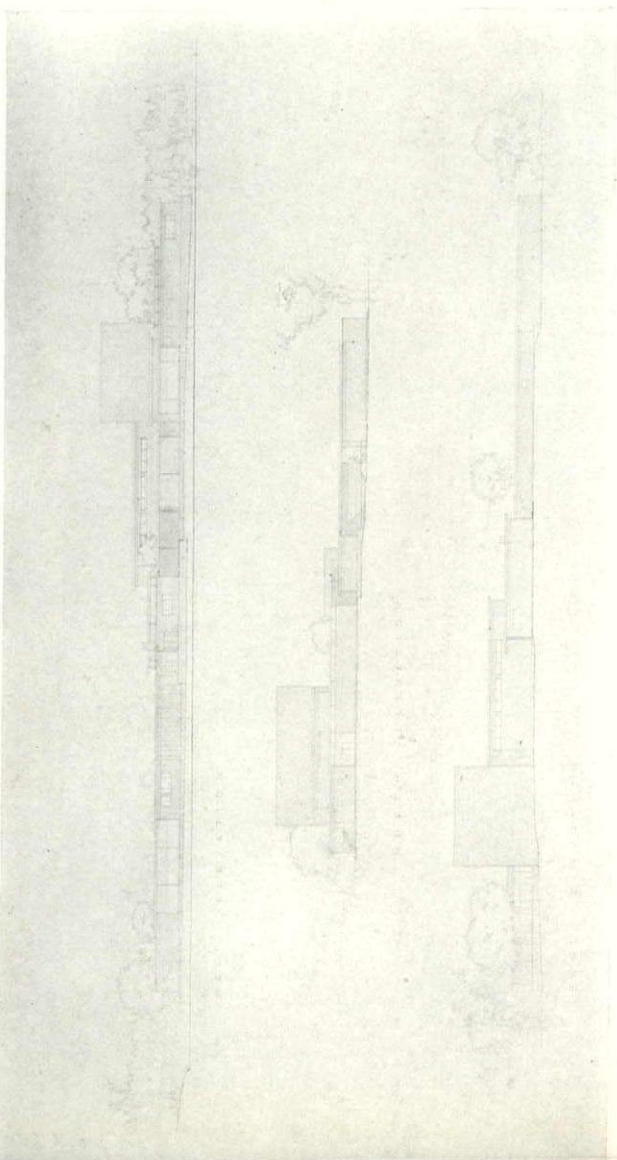
DESIGNS PLACED **FIFTH: LYNDON and SMITH** DETROIT, MICH.



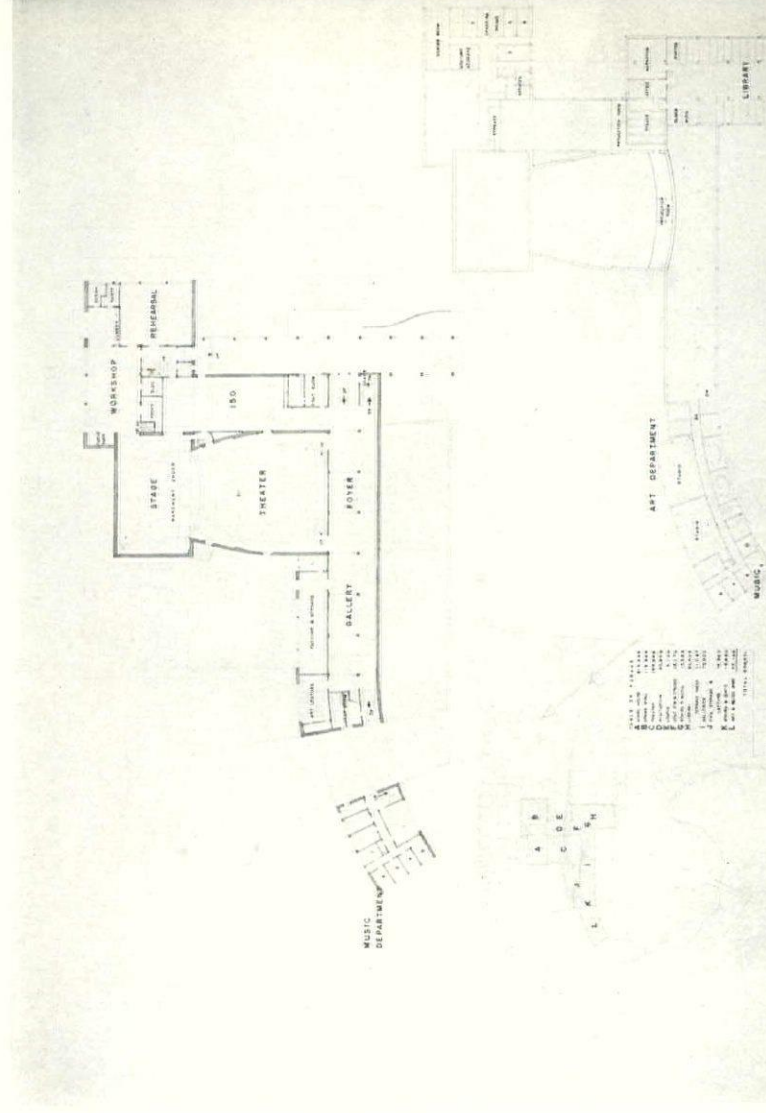
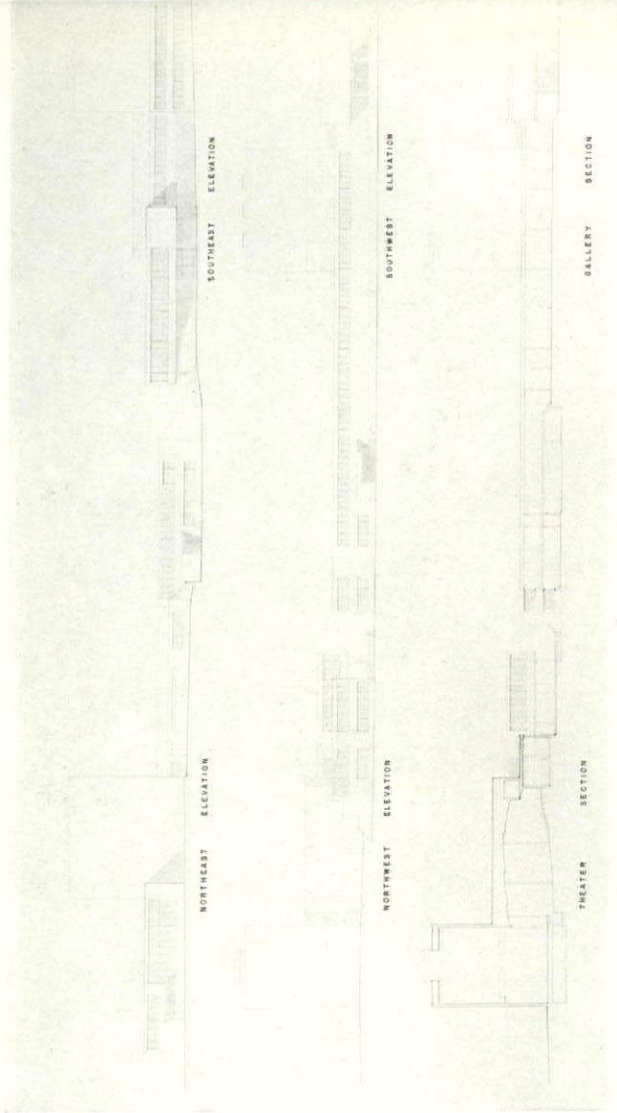


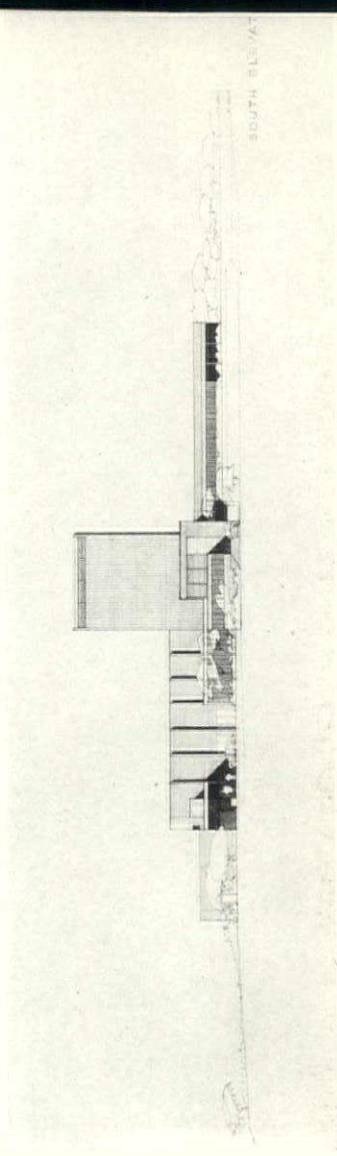
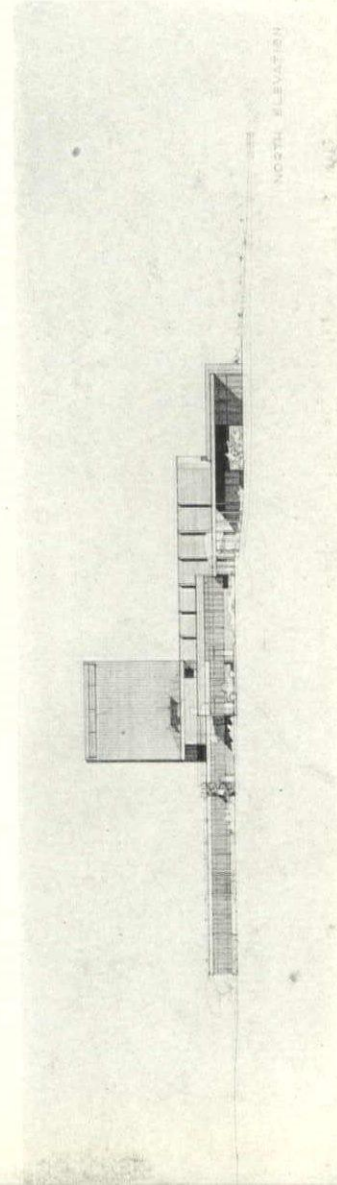
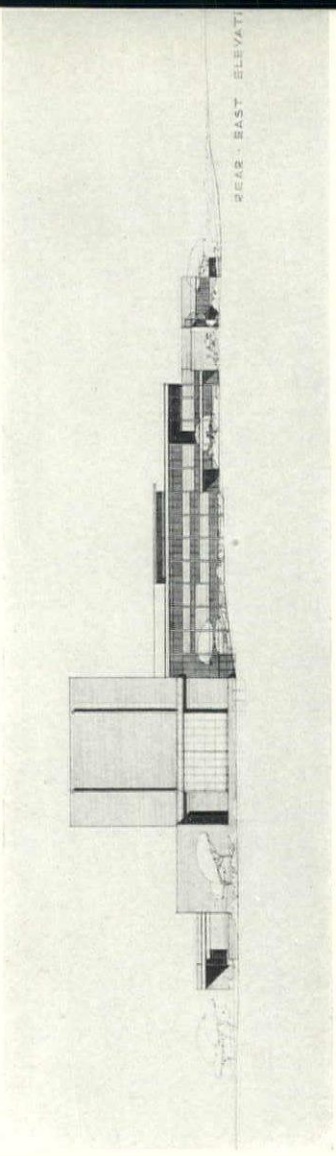
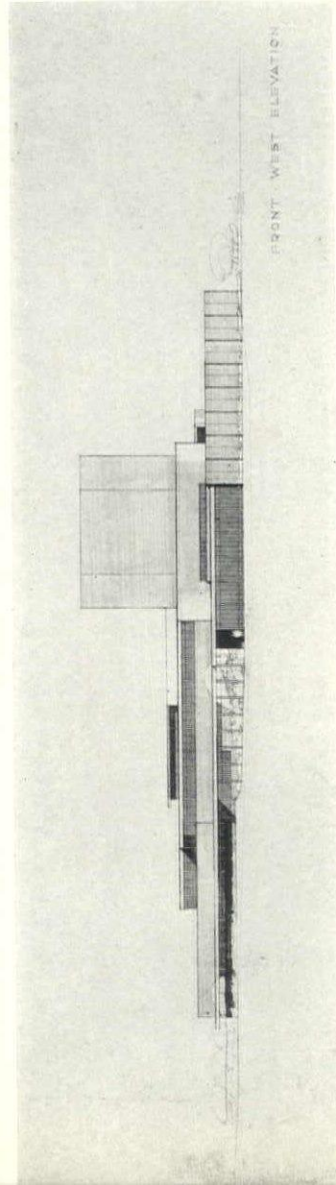
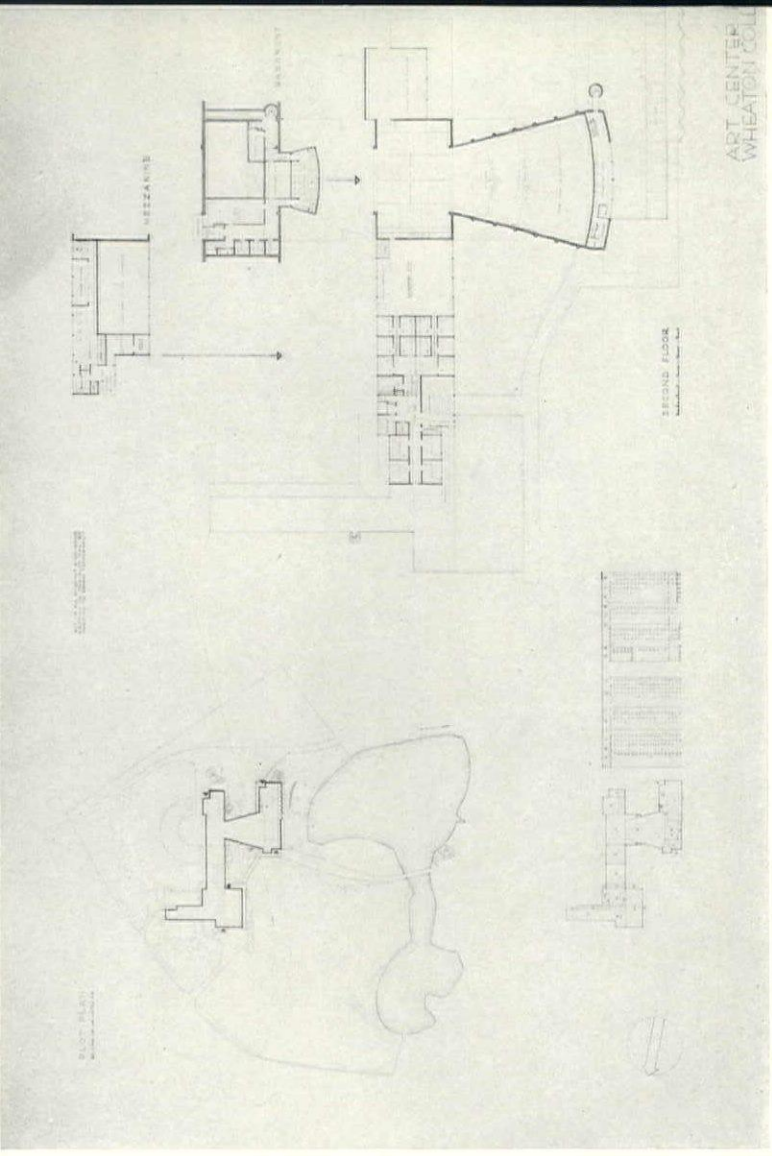
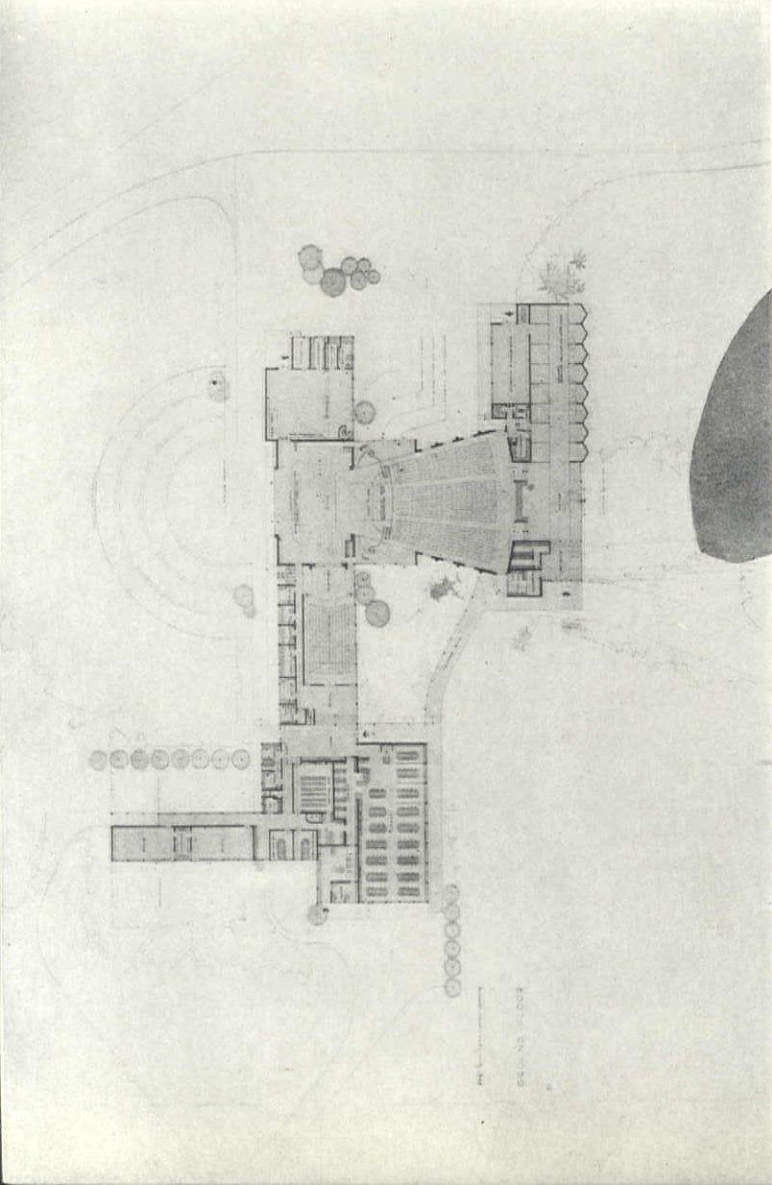


MENTION: **CARL F. BRAUER, WILLIAM T. PRIESTLEY, JR., JOHN B. RODGERS**
 NEW YORK, N. Y.

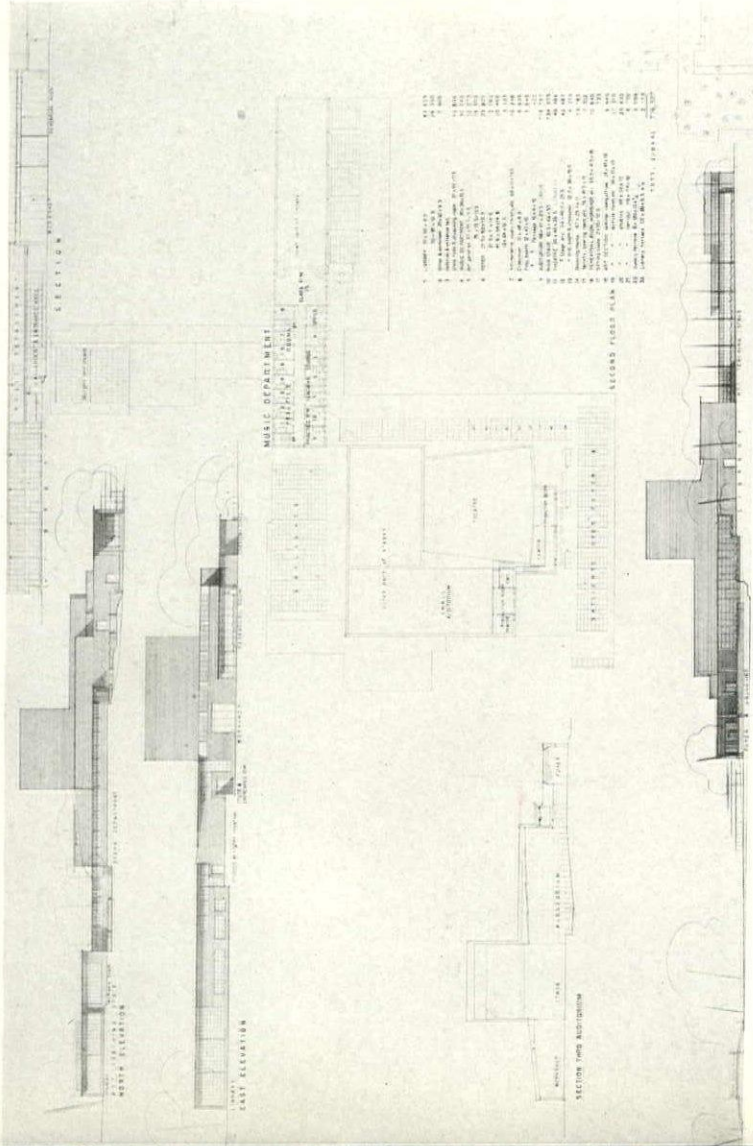


MENTION: **G. HOLMES PERKINS, FRANCES W. HARTWELL, ASSOCIATE**
 BOSTON, MASS.

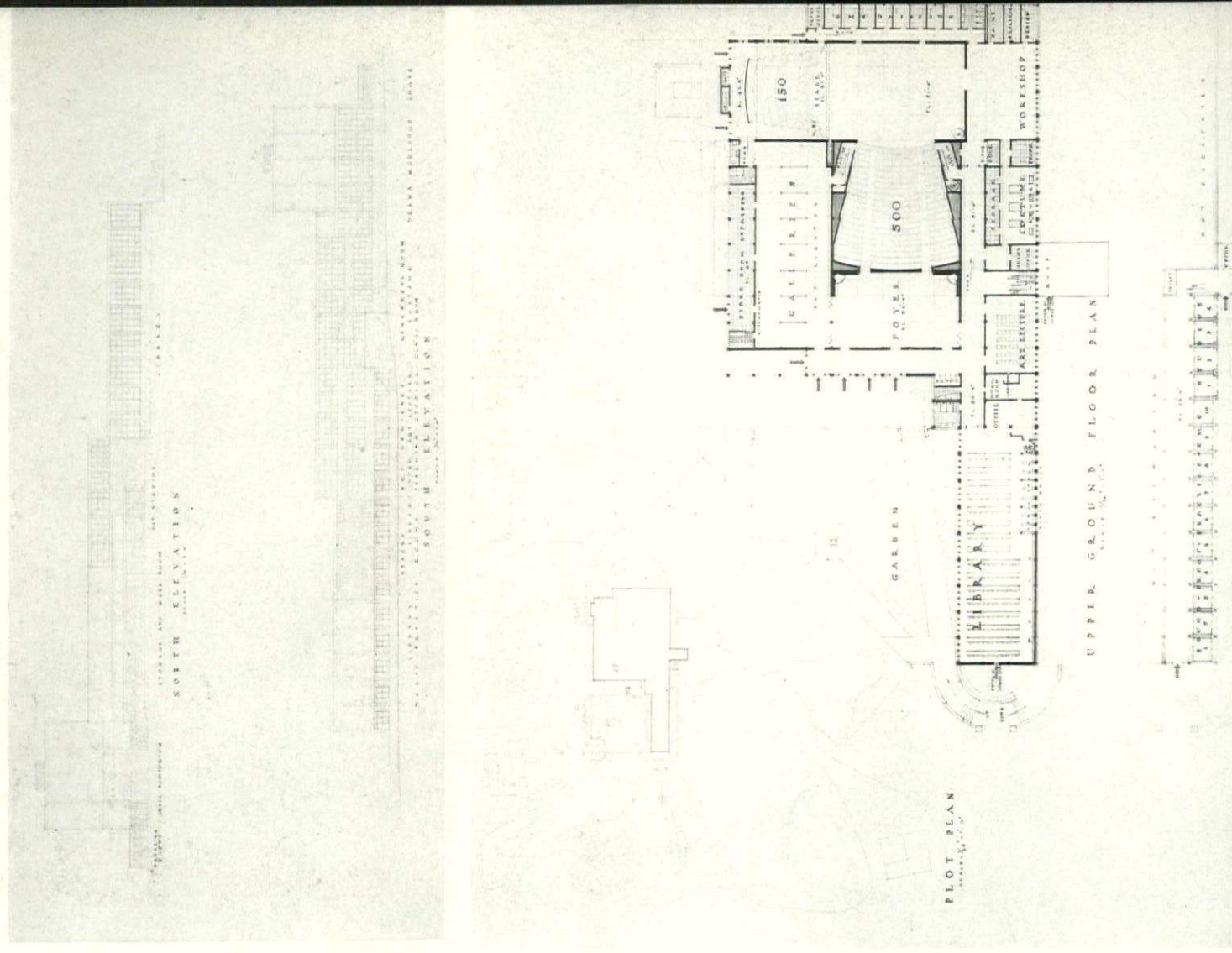




MENTION: **ROBERT T. HANDREN** NEW YORK, N. Y.



MENTION: **CARTER EDMUND HEWITT** PEORIA, ILL.



BUILDING MONEY

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USHA'S Labor Leader Walter V. Price

Fleet

BUILDING LABOR GOES COOPERATIVE,

speeds Government's low-cost housing. Private construction polishes a hope

as USHA's Laborite Price counts 100 no-strike, steady-wage agreements.

WHEN Building Labor goes to work, anything can happen. What it will do and what it will not do have always been moot points which it seldom puts in writing. Unprecedented, therefore, but perhaps precedent-setting, has been the rapid-fire signing of no-strike and steady-wage agreements by local labor units involved in the low-cost housing program of the U. S. Housing Authority. By mid-June, 50 such "contracts" had been negotiated, specifically providing 1) that jurisdictional disputes will cause no stoppage of work and 2) that wage rates will not be upped during construction of projects. And, USHA's Director of Labor Relations, Walter V. Price, reports that another 50 "contracts," are all but signed.

Significance. Tremendous is the significance of these developments. First, they point to acceleration of Government's low-cost housing program, give basis to the prediction that USHA's July disbursements will approach \$6 million and that by next July the total will exceed \$200 million.

Disbursements in the fiscal year just closed amounted to a paltry \$4 million.

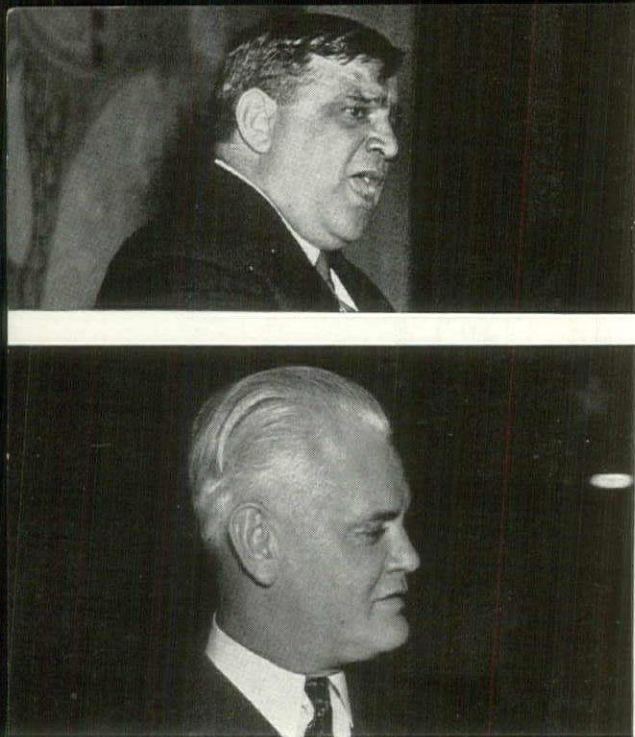
Secondly, these developments on the Labor Front have big meaning for Building at large. If public housing can benefit by Labor's more cooperative attitude, so can private housing. In fact, any type of large scale, private construction stands to benefit by the provisions in Labor's latest "contracts." In short, they facilitate the cost-estimating of projects and, through the steady-wage clause, help keep costs within estimates. More important, the no-stop-work agreement points to reduction of contractors' unpredictable strike expenses, which in turn should make for lower bids on buildings. USHA Administrator Straus predicts that cost-savings arising from the two-part agreements will approach 15 per cent.

For the USHA. Labor's wage and strike agreements with the USHA are merely recent manifestations of a long-standing cooperation. Aware not only of the amount of work at stake but also that

Government's housing is aimed at low-income families, curiously philanthropic Labor has fought long and hard for enabling legislation. It was the strongest backer of the original but unsuccessful attempt to pass the Wagner-Steagall Act in 1936. It was the driving force behind last year's successful attempt, even did a little behind-the-scenes persuasion of unsympathetic Congressmen.

Logical, therefore, has been Labor's assumption of some responsibility for USHA's successful operation, despite its contrary attitude toward the similar operations of PWA. Reason: USHA is a long-range, sociological undertaking assuring many man-hours of union labor employment; PWA has always been on a short-period basis with no such labor standards written into its basic law as are found in the Wagner-Steagall Act.

Parentage of Labor's plan of cooperation is claimed by many, notably USHA's Walter Price and New York City's Mayor LaGuardia. Rightful father, however, is neither. Actually, the plan is a product of



Above, Aemo; below, Hansel Muth

Co-claimant of credit for the USHA-Labor agreements is New York's blustering Mayor LaGuardia (top). Dapper Joseph A. McInerney gave Labor's approval, ordered the following letter, a significant document for Building:

BUILDING AND CONSTRUCTION TRADES
DEPARTMENT
AMERICAN FEDERATION OF LABOR

Washington, D. C., May 10, 1938

TO LOCAL BUILDING AND CONSTRUCTION TRADES
COUNCILS AFFILIATED WITH THE BUILDING AND
CONSTRUCTION TRADES DEPARTMENT, A. F. OF L.

Dear Sir and Brother:

On May 3, Mr. Walter Price, Director of the Labor Relations Division of the United States Housing Authority, appeared before the Executive Council of this Department and discussed with the members of the Council the low-rent housing program of the United States Housing Authority. The Executive Council recognized the importance to labor of this low-rent housing program and approved in principle the two resolutions which it believes should assist that program. The resolutions approved are: (1) that in case jurisdictional disputes arise on any low-rent housing project of the United States Housing Authority, no stoppage of work shall take place until such time as the Building and Construction Trades Department of the American Federation of Labor, have had full opportunity to adjust the differences between the trades; in accordance with the provisions of Section 37 of the Department's Constitution, (2) that wage rates in effect at the time construction is started on any low-rent housing project of the United States Housing Authority shall be the rates at which construction of that project is completed.

The Executive Council of the Department instructed its officers to urge all local building trades councils to adopt resolutions similar to those approved by the Executive Council of the Building Trades Department and to assist in every way in the development of the program of the United States Housing Authority.

This is not to be construed to extend beyond any one unit of contract.

Fraternally yours,
(signed) Herbert Rivers, Secretary Treasurer

spontaneous combustion, brought slowly to the burning point by USHA's tardiness in actually getting under way. Fed up with the hemming and hawing that accompanied New York City's attempts to obtain definite commitments for its Queensbridge and Red Hook projects, Laborite LaGuardia blustered an order that Labor do its part in guaranteeing that building costs would not exceed the requisite \$1,250 per room. For his constructive blustering, real credit is due.

More credit, however, is due the USHA team of Straus and Price; for, while an analysis of the combustion is difficult, its chronology reasonably begins in October, 1937 when Labor's candidate and New York City's former Special Housing Commissioner, Nathan Straus, was placed on the USHA throne. His insistence that Walter V. Price, a dyed-in-the-wool labor leader from the ranks of the marble workers, be his director of labor relations paved the way for USHA's success with Labor. Last winter this pair borrowed Joseph A. McInerney from the president's office of the AFL Building and Construction Trades Department, went up to call on President Thomas Murray of the New York City Building and Construction Trades Council. There attended by this quartet of Labor-USHA doctors, the plan was born. For New York City's two pending projects, Murray agreed to stabilization of wages during construction and to no stoppage of work due to jurisdictional disputes—provided that the city and the USHA would get down to work within a "reasonable" period of time.

Although application of this agreement in its infancy was purely local, the plan was sold on a national basis in May when this same group, minus Mr. Murray, appeared before the Executive Council of the AFL Building and Construction Trades Department. Secretary-Treasurer Herbert Rivers was instructed to outline the agreements to all local Building and Construction Trades Councils, to urge that they adopt similar resolutions in their cities. Rivers' letter (left), is as significant a document as has come from Labor in many a month.

Long one of Labor's most obstreperous problem children, the jurisdictional dispute has been subjected to many taming attempts. As outlined in the Rivers' letter, provisions covering such disputes are identical with those adopted generally by the Building Trades Department in 1936. Only difference, and at the same time significance, is the fact that now local labor groups are being individually bound in writing to a procedure which they have heretofore endorsed only casually.

Exemplifying its earnestness in the movement, USHA did not rest once the Rivers letters were out. As local "contracts" started to appear, Negotiator Price began persuading the various locals to bind themselves to the agreement.

To date, building trades councils in 50

cities have considered it to their advantage to adopt the resolutions. Indicative of their advantage is the fact that but a handful of these cities have already received USHA earmarkings for proposed housing projects.

Operating in favor of the USHA, in local housing authorities and their contractors, is primarily the provision for stoppage of work. On the basis of Labor's 20 per cent share of Building's total cost (ARCH. FORUM, Feb., 1938, p. 115), a 1 per cent wage boost during construction could alter the overall expenditure but 2 per cent. A prolonged stoppage of work on a sizable project, however, could multiply this small percentage many fold, could even cause a contractor to go broke.

While there is no written assurance that the "contracts" will be upheld and there is no specific penalty for breach of faith, a safe bet is that Labor will abide by its word. Not only has Labor put into writing more "wills" and "will-nots" than ever before, but its agreements, by virtue of their very significance, have made front page news throughout the country. Labor should realize that if it turns tail in the face of this blast of favorable publicity, it may mean curtains for the entire craft union set-up.

Such is the story as it relates to the USHA and its far-flung housing program.

For Private Building. Since Labor's objectives in signing the USHA "contracts" are to participate and assist in the building of large projects, it follows that Labor will not be disposed to offer similar gesture of good-will to private builders unless they have an equally attractive proposition to make. Precluded, therefore, are the run-of-the-mill builders who handle construction of the country's homes and small commercial buildings. Home builders are out on still another count: residential labor is only about 10 per cent organized as such is completely unequipped to negotiate wage and strike agreements. Small fry builders must content themselves with one general aspect of the current movement—Building Labor's more cooperative attitude—and the possibility of obtaining reduced labor rates on semi-large-scale operations.*

Concrete benefits, however, are in the air for large private builders. In fact, some of them have already enjoyed the benefits. Shining example and perhaps the basis

(Continued on page 170)

* Example of the concession which union labor will make in return for guaranteed employment by residential builders is the lower-than-prevailing wage rates allowed Long Island's famed subdividers Gross-Morton. Here volume building was the crux.

Another example: organization of residential labor by home builders in Philadelphia with an appreciable downward readjustment of the union wage rates currently applying to commercial and industrial types of construction.

A COST THEORY EXPLODES

as British builders invade U. S., leave construction methods at home. Discovery: U. S. costs are 46 per cent higher.

A BRITISH building concern is currently constructing more than four score houses in Queens, New York. Since topic of many a housing pow-wow is speculation as to what extent U. S. could benefit from British experience and practice, welcome is this tangible basis for answering the query. And, from the informal research laboratory in Queens comes the apparent answer: U. S. stands to benefit but little.

Chairman and managing director of Taylor-Woodrow Estates Ltd., a London producer of some 10,000 homes in the \$3,000 price range, is Builder Frank Taylor. Last winter ambitious Taylor escorted Assistants William Noone and John Turner to the small-house fest in New York's borough of Queens, left them there with 95 lots on which to build. Prior to construction, Assistant Noone surveyed the U. S. demand for low-cost houses, found potential home owners hyper-conscious of gadgets and every conceivable comfort. Theirs was a strictly business venture; so, rather than follow their native building practices or attempt to adjust them to the local market, they decided upon a lock-stock-and-barrel adoption of U. S. design and construction methods.

Outcome of this decision and the work of Queens' famed Architect Arthur E. Allen are the 63 row-type houses now

nearing completion in Green Park. Indication that the decision to go American was indeed a wise one are 63 bills of sale and the news that 32 additional Green Park Homes will soon begin to sprout.

More important than the houses built, however, are the English-U. S. comparisons uncovered in this Queens development. Price of a Green Park home is \$5,590, or \$1,765 more than that of a "comparable" house in or near London. But the London house is really not comparable to its U. S. sister. First difference is size. Selected by Builder Noone as being comparable are the floor plans below—one from Green Park, the other from its English counterpart. A glance at dimensions shows that Britishers are content with considerably smaller rooms. Sole exception is the dining room which is about the same size in both houses. Noone estimates the cost of incorporating this extra floor area into the Queens house at \$125.

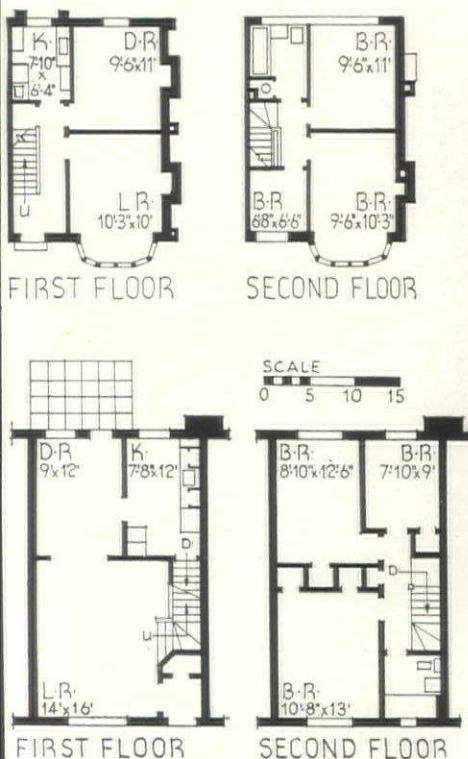
Also upping the cost of the U. S. house is inclusion of a basement and a central heating plant. British builders at home have no frostline worries, sink foundations to a depth of only about two feet. On the other hand, the average U. S. homeowner requires a basement where he stores such belongings as the Englishman puts into his gabled attic. (Gables at Green Park, as

in many other U. S. row houses, are dummies.) A costly U. S. central heating system supplants three coal-burning fireplaces located, as a rule, in the English living, dining and bedroom. With other American extras such as abundant closets (contrasted with one for the English), super kitchen equipment, colored tile, and musical doorbells, the inclusion of a basement and equipment items adds \$475 to the British-U. S. cost differential.

Another \$580 represents the much-disputed variance between English and U. S. building labor rates. Sample of this sizable item is a union bricklayer's daily check: \$3.33 in London, \$13.20 in Queens. Lastly, \$585—largest single cost differential—is the spread between comparable five minutes-from-transportation land costs.

Thus, in sum, the \$1,765 British-U. S. cost differential between comparable houses breaks down into: \$125, or 7 per cent for additional floor area; \$475 or 27 per cent for incorporation of basement and luxury equipment; \$580 or 33 per cent for labor; \$585, or 33 per cent for land.

Predominating factor in the success of the invading British builders is that their venture has been wholly Americanized. Aside from architectural style—which is typically Queens by long adoption—only English touch given the project is its name, lifted from London's famed Green Park. Lack of further English resemblance in these row houses is adequately explained by Britisher Frank Taylor: "It is the difference between the viewpoints and standards of living of the two people which is chiefly responsible for the dissimilarities between the American homes we are building and those we construct for our average (English) home purchaser."



Products of British builders on American soil are the Queens, N. Y., row houses above. Only imported features: its name, Green Park; its style, the long-adopted English Plans (left, above) are those of a "comparable" London house costing \$3,825, offer an interesting size comparison with those of a typical \$5,590 Green Park unit (left, below).

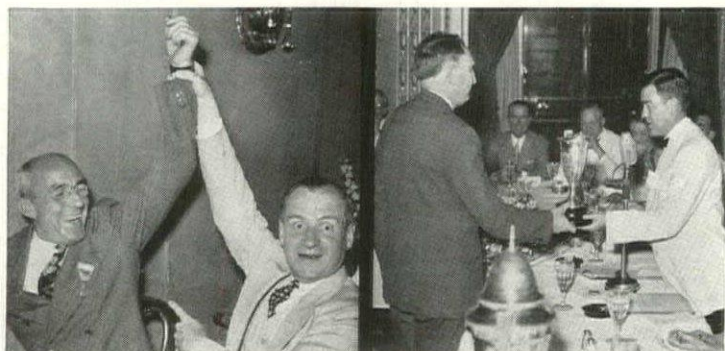
BUILDING OWNERS AND MANAGERS CONVEN



Time out during its recent Milwaukee convention gave NABOM opportunity to elect and reelect: (left to right, standing) Executive Committeemen Walter E. Wolff, Buffalo; Clarence M. Turley, St. Louis; and Robert F. Hewitt, Seattle; Executive Secretary Robert B. Beach, Chicago; Vice President Walter C. Johnson, Omaha; (seated) Vice Presidents B. E. Kenyon, Houston, and Dean Vincent, Portland, (Ore.); President Everett B. Murray, Kansas City; Secretary-Treasurer Fred Bourland, Peoria; Vice President Rae T. Smith, San Francisco.



Wind-up of the three-day program was the annual banquet where NABOM's 474 delegates and guests dined, wine and danced in the Hotel Schroeder's Empire Room.



The winner of NABOM's golf tournament, Braxton Tewart of Hamilton, Ohio, is pugilistically proclaimed by Harold H. Egan, wide-eyed Chicagoan. Tewart's 79 gross was lowest. Right, Chicago's Leo J. Sheridan presents George C. Wheeler, representing the Seattle delegation, with a loving cup—the convention's attendance prize.

Photos by Harris W.



Exhibits for building owners and managers filled Hotel Schroeder's fifth floor, edified delegates to new labor- and money-saving quirks. Large the six consecutive booths of Westinghouse Electric & Manufacturing Co.; most unexpected exhibit: Hercules Powder Co.



Famous for its beer, Milwaukee gives every convention a beer party. Above, NABOM gets a free trip through the Pabst brewery, a free look inside a vat and free beer. Under the umbrella—Chairman Russel Pickard of the entertainment committee serves thirsty delegates.



ident again is Everett B. Murray, Kansas
y's civil engineer and building manager.
ove, he casts a sly remark to a lady on his

left, a sly look at the cameraman; presides
at a convention business session; puts his
head together with those of Executive Sec-

retary Robert B. Beach and General Con-
vention Chairman Alfred Trenkamp, na-
tive of the convention city—Milwaukee.



eamlined floor washer intrigues stooping
legates Branch and Fraser and standing
legate Stahl as Exhibitor Boesen explains
Lincoln-Schlueter Floor Machinery Co.
ur men and a scrubber from Chicago.
the Finnell System Inc. booth, Salesman

C. A. Will puts the name of H. L. George,
Duluth delegate, on the dotted line. Before a
model of a Westinghouse electrostatic pre-
cipitator St. Louis' Frank Fabian and C. B.
Heineck and Buffalo's Walter Wolff marvel
at air cleaning claims: 99 per cent efficiency

and power to remove dust particles .0000008
in. in diameter. And, at far right, Skeptical
Earl Shetty of Milwaukee listens to H. W.
Thomas explain the anti-splash "Softflo
Faucet Spout End" for the Chicago Faucet
Company, another of the 39 exhibitors.

N the night of June 19 and for four
l days thereafter, Milwaukee played
st to the men who run the country's
mmercial buildings—the 31st annual
nvention of the National Association of
ilding Owners and Managers. Regis-
tration of 294 official delegates and their
0 paying guests, represented 60 cities
m coast to coast, swelled attendance
near-record proportions and prompted
lopsided majority to vote the assem-
bly the most successful in recent years.
A serious-minded group, NABOM's
legates wasted little time getting down
to business. Similarly, they wasted little
time over the business of electing officers.
Elected was an octet of vice presi-
dents and President Everett B. Murray,
Kansas City civil engineer and building
manager. Only new name on the slate:
Florida's Fred B. Bourland who pushed
Chicago's Leo J. Sheridan from secretary-
treasurer up to the ninth vice-presidency.
Contrary to usual business association
procedure, NABOM's delegates also spent
little time discussing a remedy for the
ills of Business. Reason: Devil Depression
has spared building owners and man-
agers, as evidenced by the industry's 42nd
periodic occupancy survey. Prepared as
May 1 for presentation during the

convention's opening hours, this survey
covered 2,301 office buildings (200,893,089
sq. ft. of rentable space) in U. S. and
Canada, showed occupancy at 81.91 per
cent of capacity. Six months ago the per-
centage was 81.78; a year ago, 80.94.

Decrying present methods of taxation
and realty assessment, NABOM went on
record as 1) favoring tax levies based
upon a building's rental or income value,
2) opposing the so-called single tax sys-
tem, 3) considering homestead exemp-
tion a serious menace to public interest,
Government economy and commercial
properties and 4) joining the National
Association of Real Estate Boards in an
attempt to set a reasonable tax ceiling.

Government entered discussion when
delegates considered the proposal that a
Federal department or bureau be estab-
lished to serve as a clearing house for
studies of realty problems and to guide
Government policies.

According to a convention spokesman,
building owners and managers in general
have "no quarrel with legitimate, sanely
conducted labor unions and their mem-
bers . . . (but) . . . the time has come
to establish a code of fair practice for
union activities which Government and
public opinion will solidly defend." Dele-

gates were advised to bargain collectively
for large groups of buildings rather than
individually.

Living up to advance publicity that
"The Lady from Pittsburgh" would tell
an enlightening story, Dean Thyrsa W.
Amos aroused guffaws as well as interest
when she outlined what average tenants
think they should have in their apartment
houses: a swimming pool in the base-
ment, a community center on the first
floor, a balcony for each suite, a garden
on the roof and a committee of tenants
to pass upon the eligibility of applica-
tions—and all at an average rental of \$30
per month. Basis for Dean Amos' "The
Tenant's Viewpoint" was a questionnaire
sent to inhabitants of 125 apartment
houses in New York, Boston, Philadel-
phia, and Pittsburgh.

As extra-curricular activities, NABOM's
delegates relaxed aboard a Lake Michigan
excursion steamer, exercised on a golf
course, dined and danced at an annual
banquet and drank milk at Carnation
Milk Company's plant, beer at Pabst's
Blue Ribbon brewery. When delegates
checked out, Milwaukee, long famous for
conventions and beer, checked up; labeled
the convention "a serious affair, not just
one long drinking bout and funfest."



Daniel Reynolds Merrill Ph

A SMALL-SCALE HOUSING PLAN

fills a gap in Teaneck's rental market. Four duplex maisonettes gross \$9,060 per year, cut a pattern for attractive, profitable building.

MIDWAY between demand for large apartment buildings and one-family rental houses is a vast, untapped market—a market for shelter that combines the size and rent of an apartment suite with the atmosphere of a private house. Aimed at such a market are the money-making maisonettes at Teaneck, N. J., a growing New York suburb. Composed of four well-designed Dutch Colonials, this \$40,000 project provides twelve families with duplex apartments, its owner with a gross income of \$9,060 per year and Building with a pattern for small-scale housing.

The maisonette is a product of Teaneck's rapid expansion and of a local builder's experience with rental houses. Population having increased from 4,192 in 1920 to an estimated 23,000 in 1938, Teaneck has been busy progressing from a town of one-family houses to an apartment city. Its current transitional stage, however, is still remote from the apartment building extremity. With this expansion local Architect Frederick T. Warner has kept pace, developed his extensive pre-depression land purchases with one- and multi-family houses. And, pondering

the relative success of his early investment, Warner observed two salient facts: occupancy ratios had been low in his single-family units, high in his multi-family units.

Design. Not satisfied with the return on his former investments, Architect Warner mulled over methods of making future developments more productive. Immediate problem was improvement of a 157 x 126 ft. lot sandwiched between two one-family houses and serviced at the rear by a narrow alley. Although zoned for apartment building, such construction was out of the question. Reasons: it would depreciate Warner's adjacent properties and Teaneck was not yet ready for a sizable apartment.

Decision was to build a group of his most popular multi-family units. Forthwith a small two-family house was centered on the lot, flanked on either side by a four-family unit—a duplication of a previous Warner experiment on the opposite side of the street. To the rear was built a battery of eight garages, two apartments above. Excepting those over the garage, all apartments are duplex.

Costs. Warner's generous specification Old Jersey Dutch Stone helped to make his project architecturally attractive, but an odd circumstance kept this feature from boosting construction costs beyond reason. He had formerly purchased the stone when commissioned to build a large Teaneck club house. Plans fell through and Warner was left with a \$15,000 pile of rocks in his back yard. In other respects, no noteworthy short-cuts were taken to reduce labor and material costs. Total construction and landscaping expenditures amounted to \$40,000. Unit costs: \$3,333 per apartment, \$889 per room and 29 cents per cubic foot. All amounts exclusive of land valued at \$10,000.

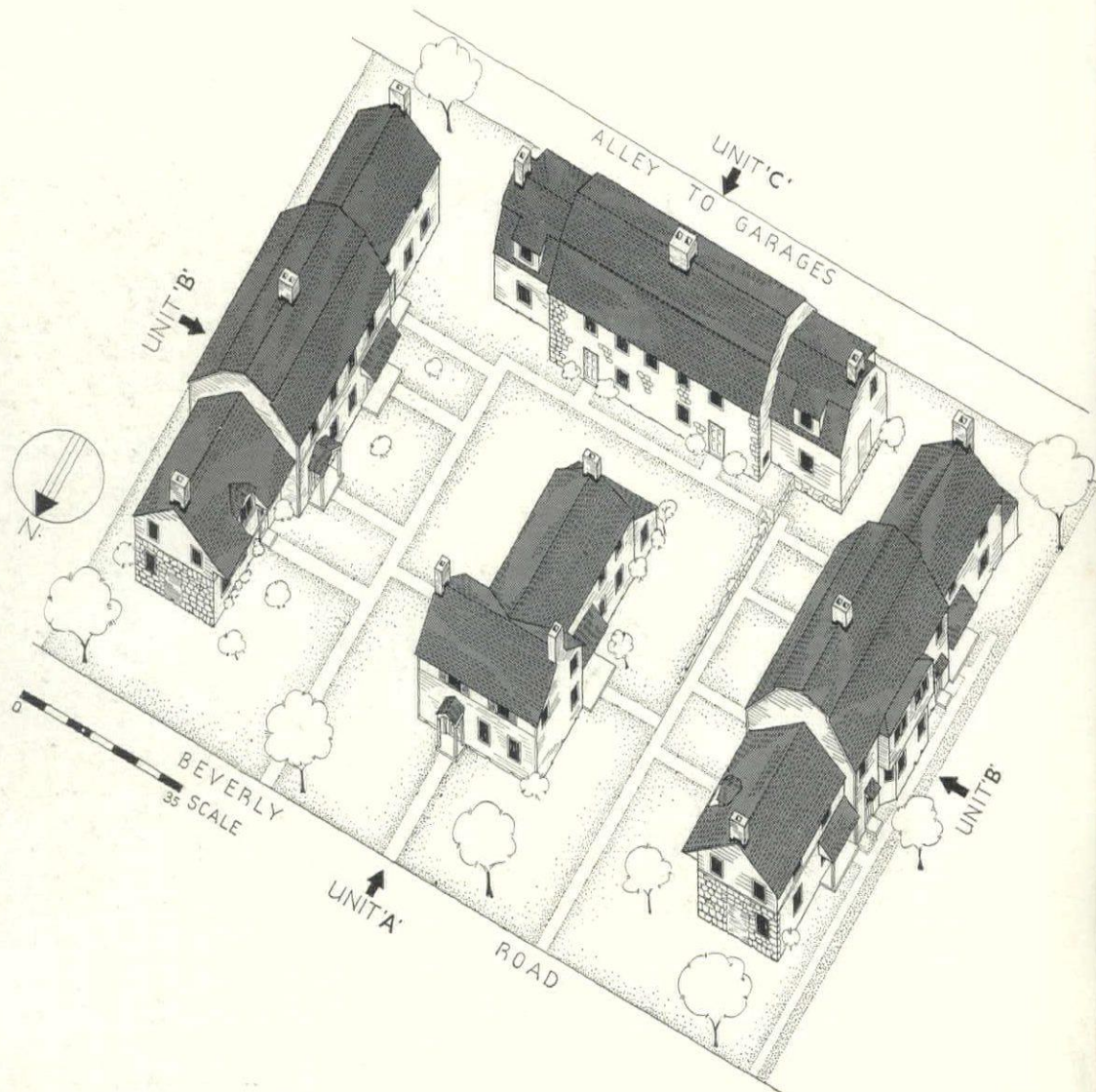
Rents. Collectively misnamed "Cottage Court Garden Apartments," the maisonettes have been simple to rent. To wit: occupancy has been 100 per cent since the project's debut, year ago. Rents run \$55 per month for the five three-room suites, \$60 for the four four-room suites and \$65 for the four four-and-a-half room suites. To each charge is added \$1.25 for water, 75 cents for garbage disposal, and

if a garage is desired. Simple mathematics indicates that Cottage Court's average rent per room per month is \$15.89, that it grosses an annual income of \$9,060 (apartments, \$8,580; garages, \$480).

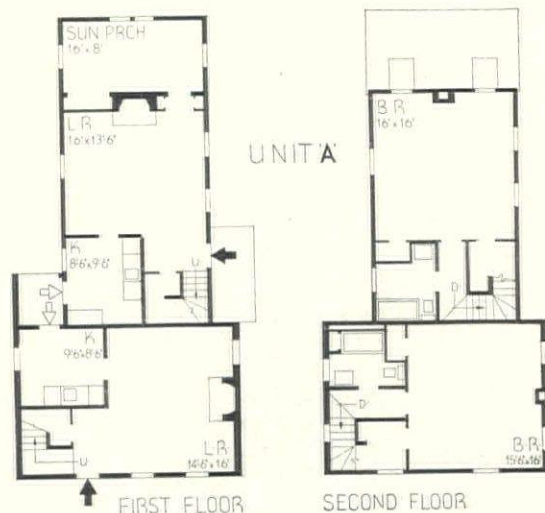
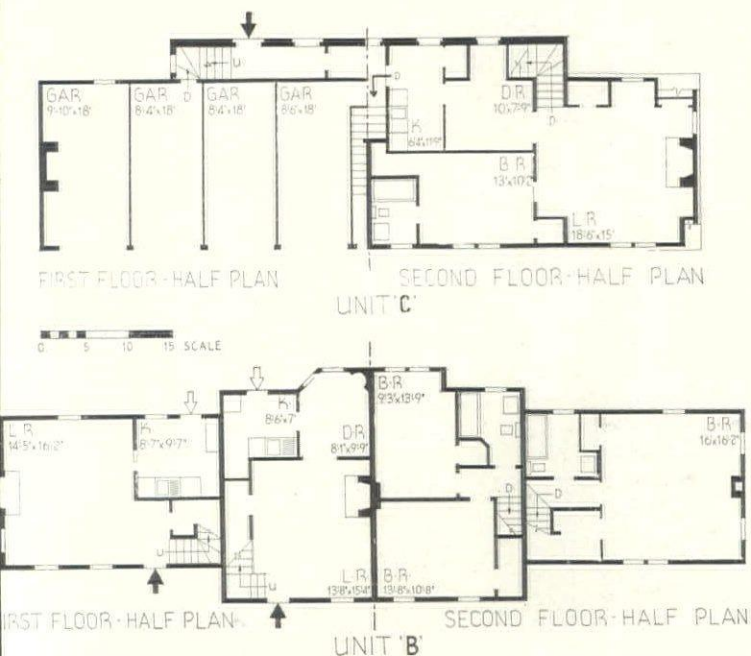
Financing. Had lending institutions been receptive to the scheme, Teaneck long would have had its maisonettes. For ten years Architect Warner shopped around with a model of the project in search of necessary capital. Unable at first to present his plans to insurance company executives, he bandied with lesser wigs, and then traditionally skeptical of this tried form of investment. Via a mortgage company friend, the model finally got to the executives of the Phoenix Mutual Life Insurance Co., and Warner got a ten-year, 6 per cent mortgage for \$30,750.

With Cottage Court prospering, lenders are now showing keener interest in this new type of housing, are suggesting construction of similar projects in nearby communities. Capital's cooperative attitude has already prompted Warner to begin another group of maisonettes in Teaneck where the mortgage will be insured under Section 210 of the amended National Housing Act. And, a local competitor is now putting the finishing touches on still another group.

No novice at property development, Architect Frederick T. Warner has for eighteen years been active in Teaneck and environs, has frequently averaged \$500,000 of residential construction per year. So a civil engineer, 52-year-old Warner draws on the experience of a Cornell education and a war-time ship building business. His efforts to meet the housing demands of a growing community and to milk all possible revenue from his land purchases should continue to produce interesting stuff for Building. Meanwhile, his maisonettes, adopted locally as the "Teaneck Plan," might attractively and profitably fit into other building patterns.



Best suited to Teaneck's rental-house demand are Architect Warner's 'B' units each containing four duplex apartments. Unit 'A' houses two families; unit 'C', two families and eight automobiles. Note that each apartment has an individual entrance, that all but one front on the landscaped courtyard.





UNIT 'C,' FRONT

UNIT 'C,' REAR





UNIT 'B'



UNIT 'A'

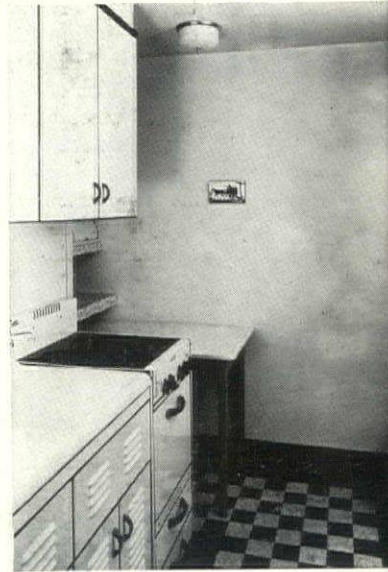
Exteriors of the maisonettes are varied by use of clapboards, stucco, brick and stone, help individual apartments approach as nearly as practicable the characteristics of private houses. Dutch Colonial architecture unifies the group into what casually appears to be four large residences (see picture, page 164).



LIVING ROOM



HALL



KITCHEN

Interiors were decorated to suit the tastes of tenants who rented the entire project prior to its completion. Beamed ceilings and paneled walls add to the house-like quality of Architect Warner's duplex apartments. All four buildings are heated by a central plant. Basements are available for storage only.

CONSTRUCTION OUTLINE

FOUNDATION: Walls—concrete block. Cellar floor—poured concrete. Waterproofing—Truscon Laboratories.

STRUCTURE: Walls—Old Jersey Dutch stone; some 8 in. brick walls backed with Truscon Laboratories foundation coat; others—Johns-Manville asbestos shakes on wood frame.

FLOORS: sub-floor, finished floor—select white oak and planks, E. L. Bruce Co.

ROOF: Construction—2 x 6 in. rafters; 1 x 6 in. roofers under asphalt and asbestos, 1 x 2 in. elsewhere; asphalt on low slopes, 24 in. Royal cedar shingles on steep slopes. One building, Johns-Manville asbestos shingles.

CHIMNEY: Flue lining, 20 x 20 in. for furnace; 8 x 12 in. for fireplaces. Dampers—cast iron, Peerless Mfg. Corp.

SHEET METAL WORK: Flashing, gutters and leaders—16 oz. copper.

INSULATION: Attic floor and roof—4 in. mineral wool.

WINDOWS: Sash—double hung, wood. Screens—full outside, bronze mesh.

STAIRS: Treads—oak. Risers and stringers—white pine.

FLOOR COVERINGS: Kitchen and bathrooms—linoleum over pine.

WALL COVERINGS: Living room—50 per cent pine panel; remainder—50 per cent panel to wainscot, above plaster painted or papered. Bedrooms and halls—paint or paper.

WOODWORK: Shelving and cabinets—Murphy Door Bed Co. Doors—6 panel, white pine. Garage doors—8 panel, Overhead Corp.

PAINTING: Floors—Tuff-o-lite or Gym-finish, Holcomb Mfg. Co.

ELECTRICAL INSTALLATION: Wiring—No. 2 plan, General Electric Co.

KITCHEN EQUIPMENT: Complete cabranette kitchen, vitreous enamel, all-steel units, by Murphy Door Bed Co.

BATHROOM EQUIPMENT: All fixtures by Standard Sanitary Mfg. Co.

HEATING: System—Bell & Gossert. Oil burner—Delco Appliance Corp. Radiators—light cast iron. Regulator—Minneapolis-Honeywell Regulator Co. Hot water heaters—Bell & Gossert.

A MIAMI QUASI-TAXPAYER

features shop flexibility and a \$12,500 potential income.

Architect Weed builds a modern example in stone and glass.

In preceding issues THE ARCHITECTURAL FORUM has presented four panels of taxpayers, together with a summation of their finances (Arch. Forum, Feb., July, Sept., 1937 and Mar., 1938). This month The Forum concludes its series with a quasi-taxpayer from Miami, Fla.

A taxpayer, in the true sense of the word, is a product of Depression. Usually a one- or two-story, multi-tenant building erected upon expensive land, its prime purpose is to pay taxes—at least until Prosperity warrants construction of a larger building. Customarily it is dwarfed by its multi-story neighbors. The Miami building presented on these pages corresponds to an orthodox taxpayer in most respects, but more properly might be dubbed a quasi-taxpayer.

Fronting on Biscayne Boulevard, busy tributary of the Miami-Miami Beach causeway, the \$110,000 Boulevard Shops Building is situated on the boundary of a Miami slice of the famed Phipps Estate—a vast piece of property wedged between the city's residential and commercial sections. In charge of this initial development is Bessemer Properties, Inc., a realty company known locally as owner and operator of the Boulevard Shops Building.

Having encountered resistance in renting similar buildings featuring shops of identical appearance, the realtors instructed Architect Robert Law Weed to avoid repetition in his designs. Other primary requisites: flexibility of plan, a loft, minimum cost and low maintenance.

That the problem was admirably solved is indicated by a study of the accompanying illustrations. On the ground floor fourteen shops were provided, 14 ft. wide, 41 to 70 ft. deep. Flexibility of the planning, however, permits use of the entire area (16,600 sq. ft.) as two large shops. Monotony of shop fronts was avoided by use of three types, produced by varying the positions and sizes of doors and areas of plate glass.

The second floor loft contains 4,110 sq. ft. of unobstructed floor space, bounded on three sides by large strip windows. While serviced by central toilet facilities, this area too may be subdivided to meet the requirements of a number of smaller lessors. Mild Miami weather dictated that the building should be without a basement, without a central heating plant.

This Miami quasi-taxpayer is as significant in exterior treatment as it is in interior plan. Panels of glass block serve

to emphasize the building's entrance the center of the block as well as horizontal and vertical circulation. Other materials figuring prominently in decoration: slabs of Florida Quarry Key Stone (a native coral rock), Vitrolite slabs, aluminum sheets and moldings.

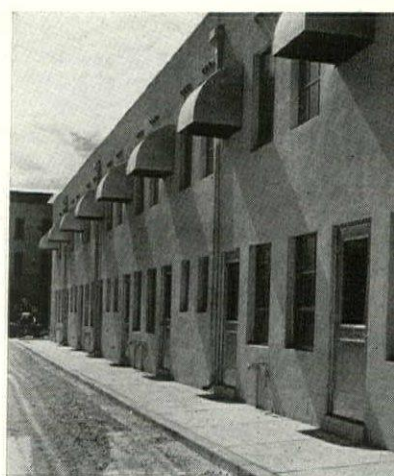
Although the American Automobile Association moved in the building immediately after its completion early last winter the landlord does not anticipate complete occupancy until this fall when the influx of winter vacationists will again expand Miami's population from 150,000 to 200,000. And, with the city doing all in its power to put business on a less seasonal basis, Boulevard Shops Building stands to attract some of the more permanent tenants. Also operating in its favor is the strong possibility that the virgin Phipps Estate terrain to the north will be developed and that Architect Weed will have the upper hand in making it an attractive place in which to live. In any event, this building may well serve as a model for other, more congested cities where construction of the true taxpayer is more expedient than in Miami.

When and if the Boulevard Shops Building is completely tenanted at current rent scale, an outline of its finances will look somewhat like this:

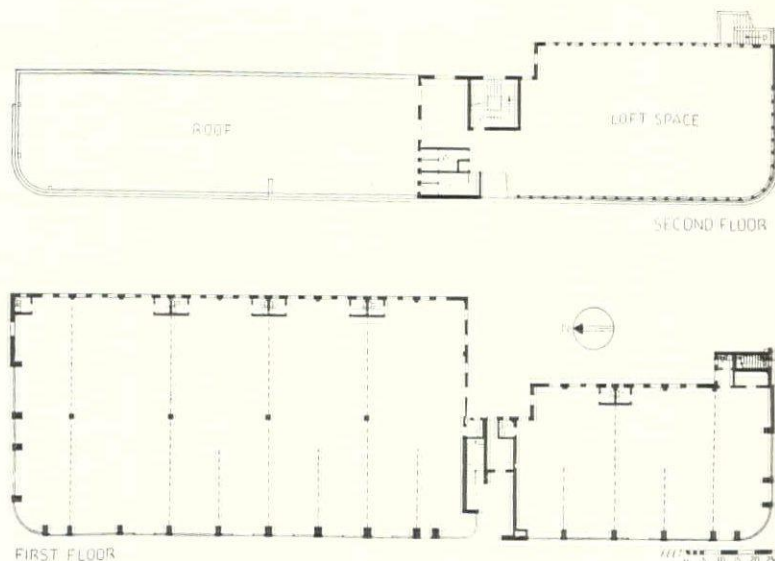
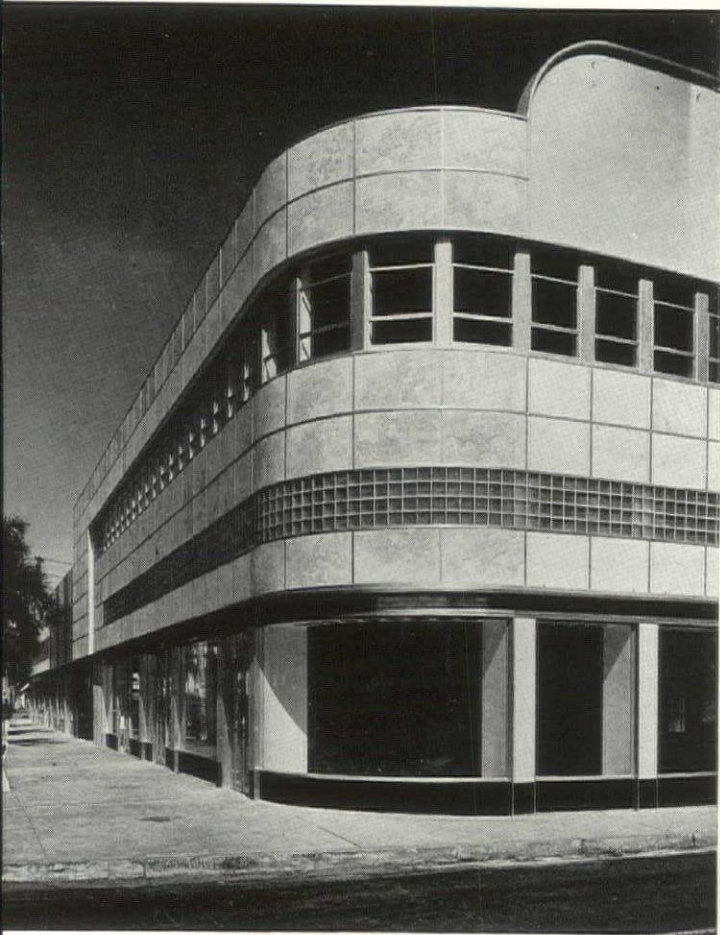
	Before	After
Assessed Valuation	\$3,600	\$100,000
Taxes	800	2,000
Rents	none	12,500
Mortgages	none	none
Cost of new building		110,000



Samuel H. Gottscho Photos



Large areas of colored coral stone, Vitrolite and aluminum in Architect Weed's quasi-taxpayer (left) make for variety of shop fronts, help unify the entire design. Stucco was used on the rear of the building (above) for the obvious reason that it is inexpensive. Each shop is furnished with complete utilities including a back door and ducts for mechanical ventilation and future air conditioning, making it thus be operated economically as a unit.



South end of the quasi-taxpayer (left) provides a large blank area for outdoor advertising—an additional revenue-producing element and a vast improvement over the usual billboard. A strip of glass block above shop windows (below, left) emphasizes horizontal circulation, admits light where ventilation is not required. Since hurricanes are a menacing factor, all plate glass windows are equipped with guides for rolling steel shutters.



CONSTRUCTION OUTLINE

FOUNDATIONS: Footings—creosoted wood piling. Walls—reinforced concrete grade beams.

STRUCTURE: Exterior walls: Front—8 in. poured concrete and 3 in. filled polished Quarry Key Stone or 8 in. poured concrete, 3 in. brick and cement fill and $\frac{3}{8}$ in. sandblasted Vitrolite, Vitrolite Div., Libbey-Owens-Ford Glass Co., or 8 in. poured concrete and 4 in. air space covered with $\frac{1}{4}$ in. aluminized aluminum sheets. Rear—8 in. concrete block with reinforced concrete columns and tie beams, $\frac{3}{4}$ in. waterproofed stucco. All walls furred inside with 2 x 2 in. termite treated wood furring strips, U. S. Gypsum Co. rocklath and plaster. Floor construction: First—reinforced concrete slab; second floor and ceiling—wood joist on steel frame.

ROOF: Barrett Co. 15-year bonded roof and flashing.

SHEET METAL WORK: Flashing—Cheney through wall copper flashing, Cheney Co. Gutters—copper. Ductwork for future air conditioning system—Armco paint grip galvanized sheet steel, American Rolling Mill Co.

INSULATION: Roof—4 in. U. S. Gypsum Co. glass wool.

WINDOWS: Sash—Campbell Metal Window Corp. Glass— $\frac{1}{4}$ in. polished plate on front and sides; $\frac{1}{4}$ in. obscure wire glass in rear, Libbey-Owens-Ford Glass Co. Glass brick—Owens-Illinois Glass Co. Store fronts— $\frac{1}{4}$ in. polished plate A quality, Libbey-Owens-Ford Glass Co.

FLOORS: First floor shop areas—terrazzo. Second—red oak. **WOODWORK:** Interior doors—flush cell type, Airflo, Huttig Sash & Door Co. Exterior doors: Shop front—extruded aluminum, Kawneer Co. Rear—Kalamein with wire glass panels, Acme Kalamein Door & Sash Co., Inc.

HARDWARE: Interior and exterior—Russell & Erwin Mfg. Co.

PAINTING: Trim—matt finish enamel, Pratt & Lambert, Inc. Sash—1 coat red lead, 1 coat aluminum, 2 coats Pratt & Lambert matt finish enamel.

ELECTRICAL INSTALLATION: Wiring system—Nepco rigid hot-dipped galvanized steel conduit, National Electric Products Co. Wire—Standard Underwriters Cable Co.'s Tip Top. Switches and panel boards—Frank Adams Electric Co. Show window lights—No. 410, Curtis Lighting, Inc.

PLUMBING: All fixtures by Crane Co. Pipes: Soil, waste and vents—tar coated, extra heavy cast iron, Central Foundry Co. Water pipes—copper tubing, Revere Brass & Copper Co.

USHA LABOR

(Continued
from p. 160)

project in Philadelphia—no wage increases during construction, no jurisdictional strikes. Minimizing its significance, however, is the fact that this limited dividend corporation project was sponsored by the American Federation of Hosiery Workers and may thus be classed as one of Labor's "charity patients," a classification which fits, to a certain extent, each of USHA's low-cost housing projects.

Another and less special case is to be seen at the New York World's Fair where, in return for a guarantee that union labor would be employed to the exclusion of all other, Fair President Grover Aloysius Whalen was given Labor's word that no sudden strikes would be called (24 hours for mediation was the olive branch proffered) and that no jurisdictional squabbles would be sanctioned. Again, as in the signing of the USHA agreements, Labor's reasoning was that here was a chance for long-term employment, for obtaining some favorable publicity through a gesture of friendly cooperation.

While private projects the size of the World's Fair are few and far between, there are many whose size is large enough to make labor "contracts" expedient. For example, both Labor and the builders of Metropolitan Life Insurance Company's \$50,000,000 Bronx housing project might well benefit by a reciprocal agreement patterned after those engineered for USHA. New York City's labor has already set the stage.

Similar "contracts" would also benefit erection of future Empire State Buildings, Rockefeller Centers; large municipal and industrial plants involving a good-sized outlay of dollars and man-hours.

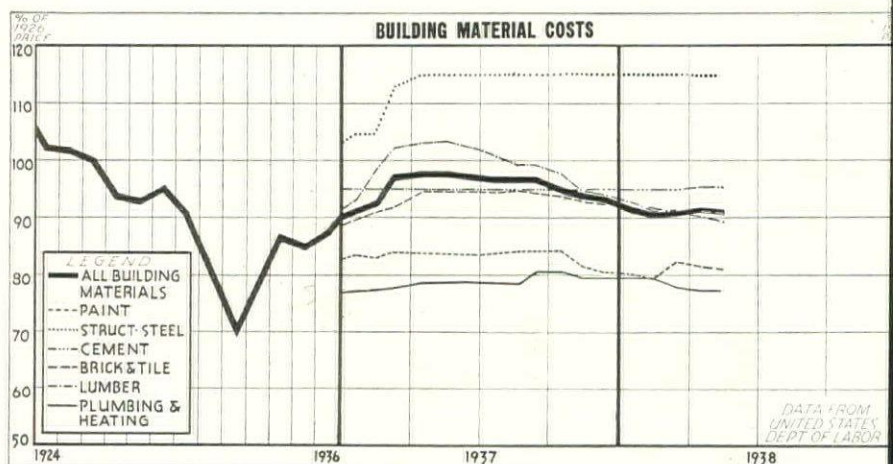
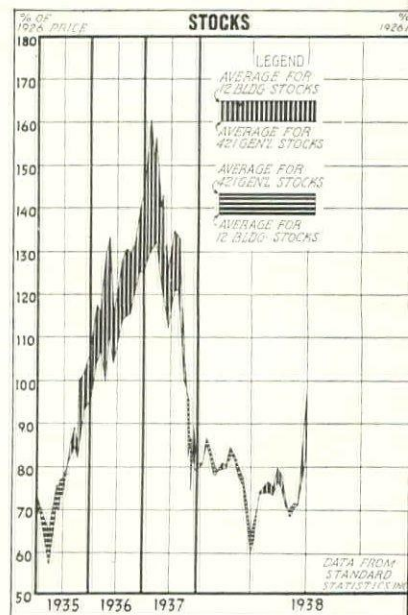
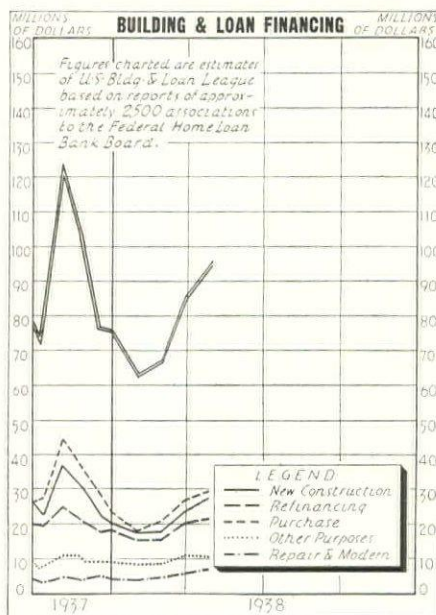
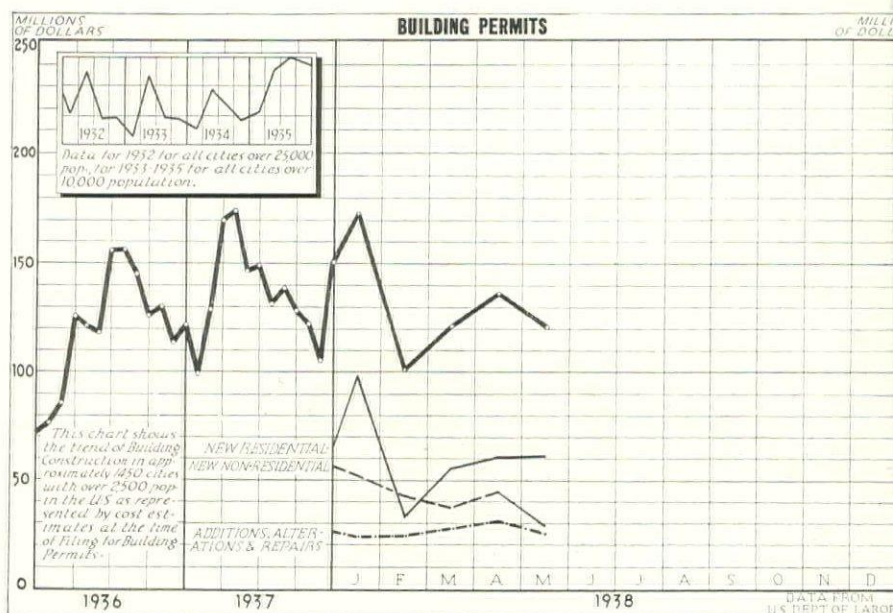
Major difference between private "contracts"—if and when they come into their own—and those of the USHA will be in scope. Where the Government's program is nation-wide, private building is usually localized; accordingly, private agreements will be negotiated between local builders and local labor units. Exceptions might arise through a more friendly Labor-PWA relationship, and through organization of bigger-than-ever building corporations conducting business on a national basis. Long awaited, such a corporation was last year prepared for launching by several big names and \$5,000,000. A survey of the plan's possibilities, however, found two holes in an otherwise promising field: Labor's jurisdictional troubles and its oft-ridiculous working rules. Through these holes, the plan fell through. Labor was on the warpath.

Today, with Labor on the peace path, big names and big money might again consider a big building corporation.

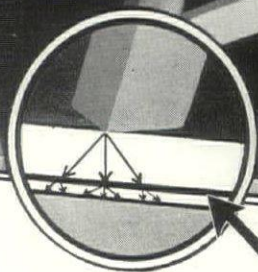
for the USHA-Labor "contracts" is the understanding which existed between Labor and the builders of the Carl Mackley housing

BUILDING'S STOCK MARKET

turns bullish, betters general price average. Building and loan financing up; costs and permits down.



What has Goodyear done with RUBBER FLOORING?



Fabric insert that acts
as a "breaker strip"

THE diagram you see here is "Exhibit A" in the case of Goodyear Rubber Flooring vs. stretching, creeping and buckling. It shows the fabric insert and explains one of the main reasons why architects choose Goodyear for large floor areas.

This insert plays an important part in extending the life of Goodyear Rubber Flooring and in assuring faultless service throughout its life.

You can easily understand how it diffuses the "point loading" strain of furniture weight over a wider area and spreads the force of every shock, whether

of footfall or other impact.

Aside from these functions, the fabric insert also protects the underlying adhesive and prevents stretching, buckling and creeping.

The placement of such an insert is of paramount importance. Thousands of performance tests have shown the best placement for all gauges to be approximately 2/64 of an inch from the bottom side. That's where you'll find Goodyear's.

For complete specifications see Sweet's 1938 Catalog, or write to Goodyear, Akron, Ohio — or Los Angeles, California.

CHECK THESE ADVANTAGES of GOODYEAR RUBBER FLOORING and WINGFOOT WALL RUBBER

BEAUTY—choice of rich colors and combinations, harmonizing with any decorative scheme.

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APPLICATION—Goodyear Wingfoot Rubber comes in rolls, one yard wide, 1/16" thick; easy to apply.

Goodyear Rubber Flooring comes in two styles—individual tiles, and continuous rolls. A fabric insert—similar to the breaker strip in auto tires—diffuses traffic shock, protects the adhesive, and prevents creeping, stretching and buckling.

THE GREATEST NAME IN RUBBER

GOODYEAR

Rubber FLOORING and WINGFOOT WALL RUBBER

BUILDING COSTS DIP

in FHLBB survey of 28 cities.
Boston leads the pack.

EACH month the Federal Home Loan Bank Board reports building labor and material costs in representative cities, bases its figures on bids submitted for construction of a hypothetical house containing 24,000 cu. ft. The June report covered 28 cities, reflected one of the most general downward cost revisions in the survey's three-year history.

Thus, bids from nineteen of the reporting cities were lower on a cubic foot basis than those submitted in March, month of the preceding sampling in these Districts. Only four cities reported an upward trend.

Percentage-wise, the largest drop occurred in Boston, Mass., where cost per cu. ft. eased 17 mills from 26.8 to 25.1 cents, a 7 per cent decrease between March and June. Next in line came Asheville, N. C. with an 11 mill, or 5 per cent, drop from 22.7 to 21.6 cents.

Already burdened with the highest unit cost in the four Districts, Springfield, Ill. added another 5 mills after March, now tops the cost scales at 29.4 cents.

Principal cities in the June survey appear in the accompanying tabulation.

FHLBB DISTRICTS STATES AND CITIES	CUBIC-FOOT COSTS			
	JUNE 1938	MAR. 1938	JUNE 1937	JUNE 1936

BOSTON:

CONNECTICUT:				
HARTFORD	\$0.239	\$0.245	\$0.264	\$0.235
NEW HAVEN	.234	.242	.246	.231
MAINE:				
PORTLAND	.234	.234	.238	.214
MASSACHUSETTS:				
BOSTON	.251	.268	.277	.246
NEW HAMPSHIRE:				
MANCHESTER	.225	.227	.242	.228

WINSTON-SALEM:

ALABAMA:				
BIRMINGHAM	.253	.254	.252	.224
FLORIDA:				
TAMPA	.237	.239	.238	.224
GEORGIA:				
ATLANTA	.217	.220	.221	.206
MARYLAND:				
BALTIMORE	.208	.214	.224	.209
NORTH CAROLINA:				
ASHEVILLE	.216	.227	.218	.200
VIRGINIA:				
RICHMOND	.219	.220	.218	.203
ROANOKE	.235	.233	.228	.207

CHICAGO:

ILLINOIS:				
CHICAGO	.289	.293	.301	.281
SPRINGFIELD	.296	.294	.291	.271
WISCONSIN:				
MILWAUKEE	.262	.265	.271	.232
OSHKOSH	.252	.251	.253	.232

TOPEKA:

COLORADO:				
DENVER	.269	.273	.280	.250
KANSAS:				
WICHITA	.224		.238	.215
NEBRASKA:				
OMAHA	.242	.243	.249	.232
OKLAHOMA:				
OKLAHOMA CITY	.243	.244	.243	.226

The House on Which Costs Are Reported a detached 6-room home of 24,000 cubic feet volume. Living room, dining room, kitchen, and lavatory on first floor; 3 bedrooms and bath on second floor. Exterior is wide-board siding with brick and stucco as features of design.

The house is not completed ready for occupancy. It includes all fundamental structural elements, an attached 1-car garage, an unfinished cellar, an unfinished attic, a fireplace, essential heating, plumbing, and electric wiring equipment, a complete insulation. It does not include wall-paper nor other wall nor ceiling finishing on interior plastered surfaces, lighting fixtures, refrigerators, water heaters, range screens, weather stripping, nor shades.

Reported costs include, in addition to material and labor costs, compensation insurance, an allowance for contractor overhead and transportation of materials plus 10 per cent for builder's profit.

Reported costs do not include the cost of land nor of surveying the land, the cost of planting the lot, nor of providing walks and driveways; they do not include architect's fee, cost of building permanent financing charges, nor sales costs.

In figuring costs, current prices on the same building materials list are obtained every three months from the same dealer and current wage rates are obtained from the same contractors and builders.

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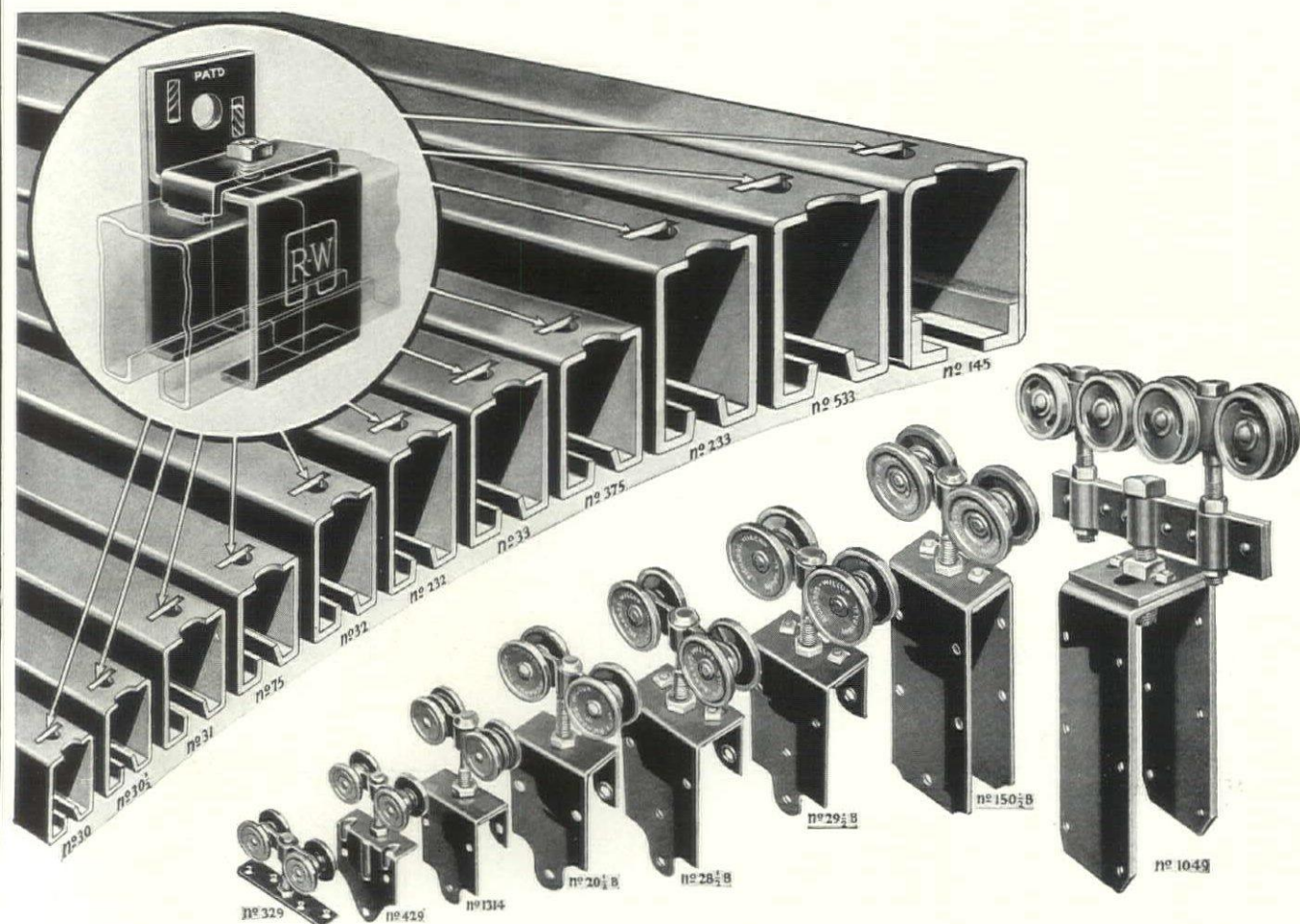
That's because there's no doubt about the soap the Ivory Dispenser delivers. It's genuine Ivory Soap! Pure, gentle, rich lathering Ivory—so safe that doctors recommend it for babies' tender skins—so popular that it's in more American homes than any other soap.

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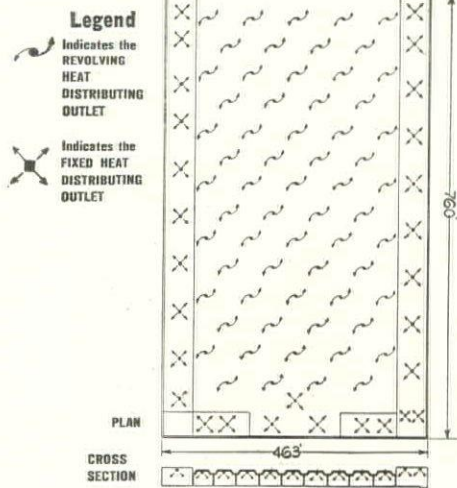
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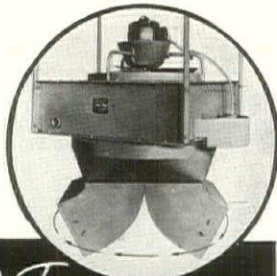
99 Wing featherweight unit heaters delivering over 34,000,000 B. T. U. per hour heat the fine new Delco Appliance plant, division of General Motors Corporation, designed by Albert Kahn, Inc. This building is the last word in modern manufacturing plant design and construction.

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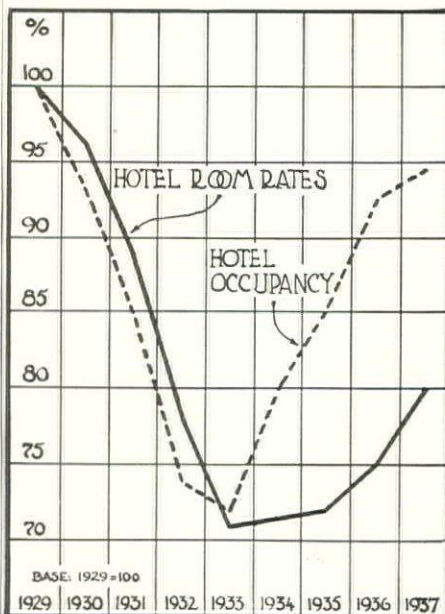
HOTEL INCOME UP,

but so are operating costs.
100 cities surveyed.

MONTH ago from the offices of Harris, Kerr, Forster & Co., leading tabs-keepers of the Nation's Hotels, came many noteworthy facts and figures on 1937's hotel business. Based on a study of 250 hotels in 100 U. S. cities, the report's most significant observations were: room rates up 6.4 per cent from 1936; occupancy, up 1.9 per cent. Encouraging note is that this improvement in room rates was the greatest since the 1933 low, but less encouraging is the climb necessary for rates to reach 1929 levels. (See chart below.)

Other interesting hostelry trends which parallel those of almost any type of business: gross income from room rents was 8 per cent greater than in 1936; from all sources, 7 per cent greater. The possibility of a corresponding increase in net income was precluded by 1937 expenses, which rose 1 per cent more than income. Largely responsible was hotel labor whose wages advanced 12 per cent during the year. Of total income, employees took 31.7 per cent with 3 per cent more for food, social security and unemployment taxes. But, the leavings of labor and all other expenses was 14.7 per cent of gross income, a not-too-disheartening rise of 3.4 per cent from 1936.

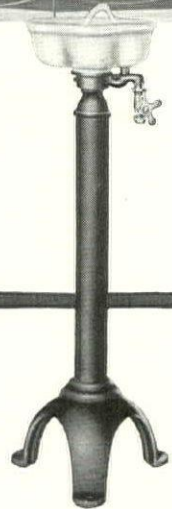
Suggestions to hotel keepers by mentors Harris, Kerr and Forster are logically toward improving revenue and lopping costs of operation. Decrying the Depression practice of "ruthless rate cutting," they see hopeful signs in recent advances (rates during 1938 have continued upward), suggest the cooperation of regional groups to study employment conditions, hours and wages as a basis for sounder agreements.



Albert Kahn specifies HALSEY TAYLORS

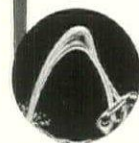


Assembly Plant
Baltimore, Md.
Albert Kahn, Inc.
Arch. & Engrs.



It is generally conceded that the architectural patterns created by Albert Kahn have established far-reaching trends in industrial architecture. Consequently, the makers of Halsey Taylor Drinking Fountains feel proud to associate their product with a building of Kahn design! Like Albert Kahn's work, these modern fountains too have influenced a definite trend... offering maximum sanitation and convenience in drinking-water service. In many of the buildings developed by this great architect, Halsey Taylor fountains are a popular choice.

The Halsey W. Taylor Co.,
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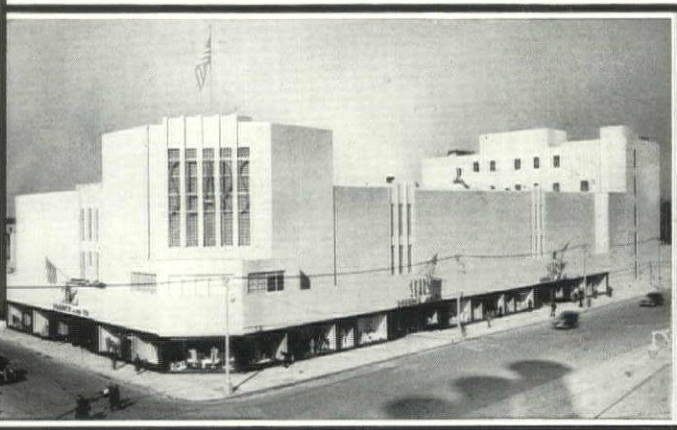
Halsey Taylor DRINKING FOUNTAINS

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Proud TO HAVE BEEN ASSOCIATED *with* ALBERT KAHN AND OTHER FAMOUS ARCHITECTS IN MANY OF THEIR TRIUMPHS!



Pictured above: Viking-equipped Assembly Plant of Southern California Division of General Motors, Los Angeles, California. Albert Kahn, Inc., architects.



Pictured below: Sears, Roebuck & Co. retail store, Highland Park, Michigan, is Viking-protected. Nimmons, Carr & Wright, architects.

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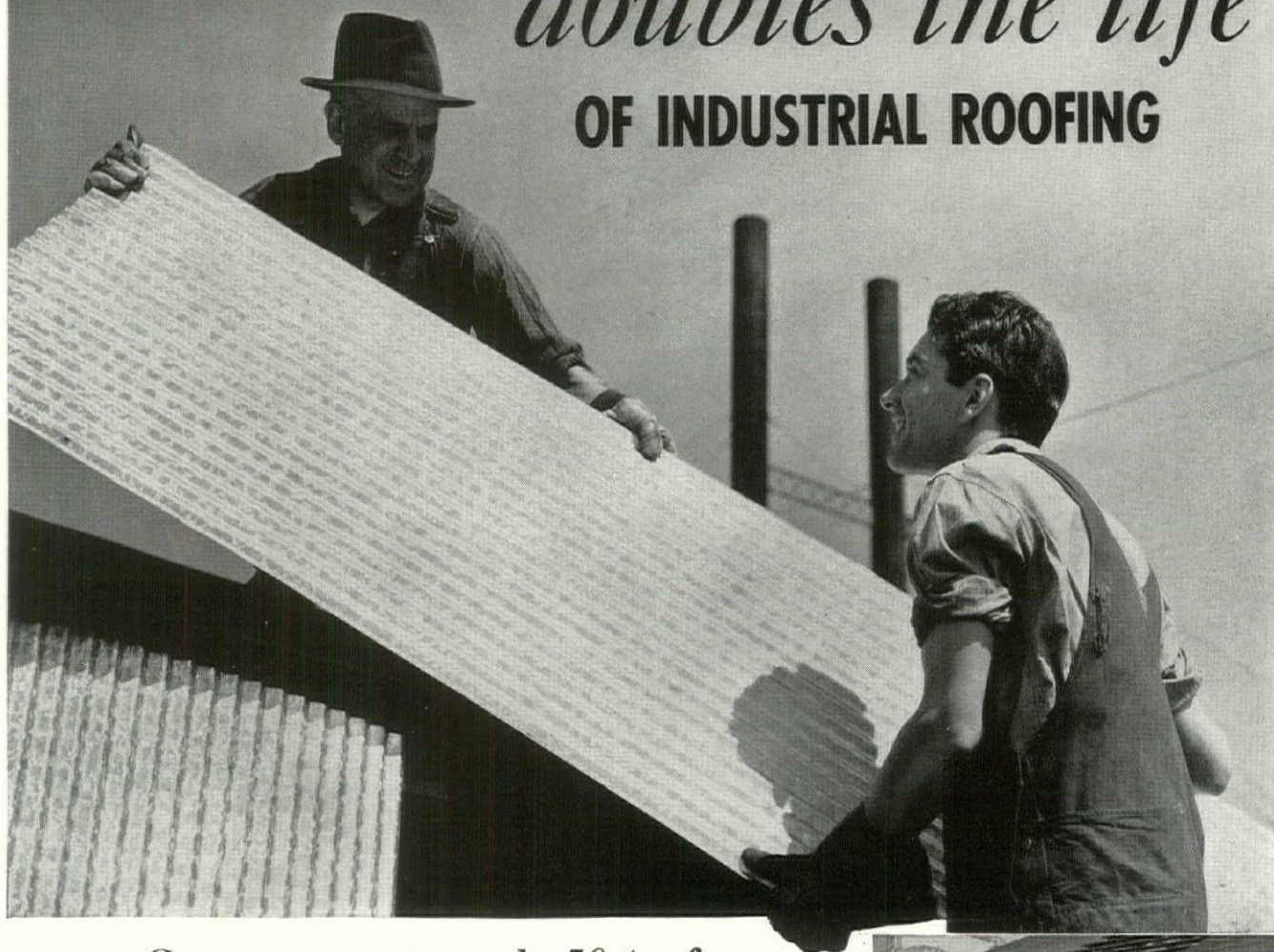
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New U·S·S Copper Steel "Sandwich" Roof keeps factory cool in summer—warm in winter. Built with two layers of corrugated sheets with gypsum board between.

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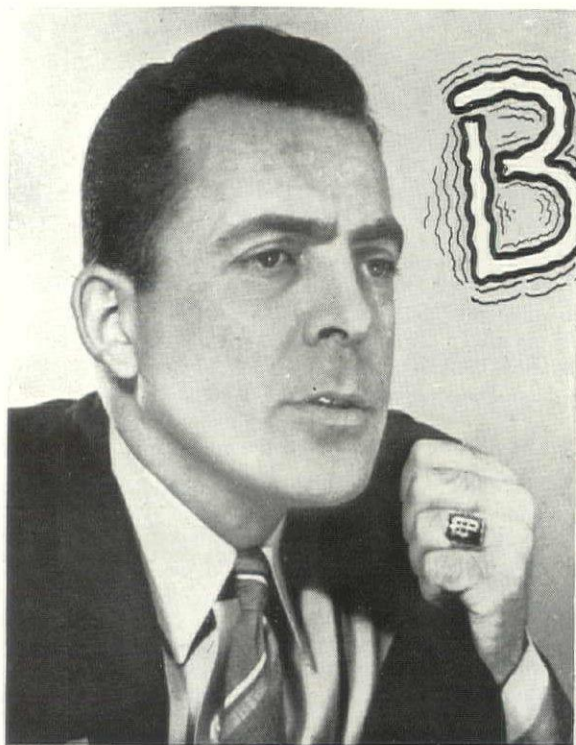
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Why are many air conditioning systems branded "unsatisfactory"?

The fundamental purpose of air conditioning is to provide relief from uncomfortable outdoor conditions. Too many so-called "air conditioning" systems, instead of providing relief, actually create discomfort.

Perhaps, like thousands of others, you have had the experience of stepping from the heat and humidity of a summer day into an "air conditioned" shop to be greeted by a "wintry" blast of cold air that actually made you wince. You expected relief but you received a shock.

Compare this kind of air conditioning with that furnished by AUDITORIUM Systems. Unlike the faulty systems that "chill" and "shock" by cooling small quantities of air to very low temperatures, the AUDITORIUM Systems cool a larger quantity of air to a

temperature only 10° or 12° below the inside air and do it economically. The larger quantity of air and smaller differential combine to produce the required gentle movement of moderately cooled air that increases the feeling of delightful comfort.

Besides being more efficient, AUDITORIUM Systems cost less to operate than others furnishing comparable service. They have been specified by the leading engineers for many successful installations made during the past decade. Investigate their advantages and economies for meeting your particular requirements.



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1. Royalty rates drastically reduced, effective June 10th.
2. Installer Licenses now issued directly to contractors by Auditorium.

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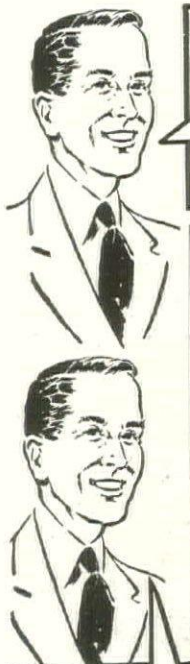
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**I'M PUTTING KOHLER
CABINET SINKS IN
EVERY JOB I DO**



THERE'S A BIG DEMAND for the Cymbria, the new sink that can be used alone or with continuous cabinets. My clients like the spacious drainboard, the deep Duostrainer-equipped basin and the 3-inch ledge for soap, tumbler and dish cloth. And they say the disappearing rinse hose and new long-reaching spout make dish washing much simpler.



EQUALLY POPULAR is the new Wellwin. It has one 8-inch-deep compartment for washing dishes, another for rinsing . . . adjoining cabinets serve as drainboards. There's a 3-inch ledge here, too, and all kinds of cabinet space. Prospective house builders can't seem to say enough about these two new Kohlers.

Plan on Kohler cabinet sinks. Their graceful lines and hard acid-resisting finish (note the smartly clipped ends, the all-steel cabinets and white chip-proof baked enamel) blend into any kitchen picture. There are many other Kohler sinks — for every home, every income. Specify them. And specify the Kohler line for bathrooms. Your clients will appreciate Kohler's good taste and craftsmanship. Write for free 4-color booklet, "Planned Plumbing." Kohler Co. Founded 1873. Kohler, Wisconsin.

KOHLER OF KOHLER
PLANNED PLUMBING AND HEATING

PRODUCTS and PRACTICE

(Continued from page 22)

SOUND REINFORCEMENT

The first, and still probably most important use for loud-speaking telephone equipment in buildings is for sound reinforcement—amplification—in what are loosely called "public address systems." Intended primarily to increase the volume of a source of sound and thus make it audible throughout a larger space, such systems consist basically of a "pick-up"—microphone, phonograph, or radio; an amplifier; and one or more—usually two—judiciously placed loud-speaking telephones connected to the pick-up and amplifier with a wiring system. They may be either portable or built-in, and are available in various sizes to suit every type of room. Additional loud-speakers attached to the central sound source and placed in the various rooms convert such a system into a system of sound distribution.

SOUND DISTRIBUTION

Sound distribution systems are designed to distribute sound from a central source or sources to the various rooms and spaces of a building. They are of two basic types: systems in which control is concentrated at the sending point, and those controlled in part at the loud-speaker, but any variation or combination of the two types is possible where needed.

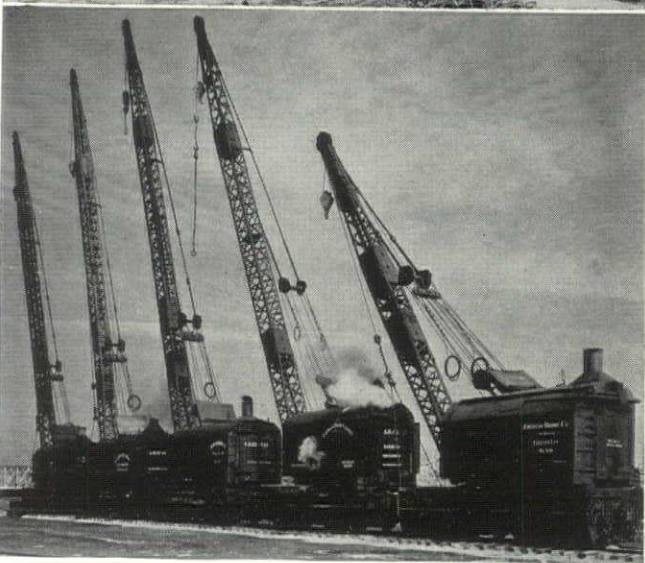
Systems of the first kind are best illustrated by the typical installation used in public schools. The center of such a system consists usually of a sound-source and control cabinet, containing one, two, or in some cases three radio sets, a phonograph turntable and pick-up, and a portable microphone attachment, together with necessary wiring, switches, meters, and a "monitor" loud-speaker for testing the sound being sent to the various classrooms. From this control panel it is possible to distribute simultaneously two or more programs—depending on the number of "channels" with which the system is equipped—to any of the loud-speakers located in the various rooms, or to any combination of speakers, or—in emergencies such as fire drills—to send the same message simultaneously to all of the speakers in the system. Systems of the second type are well illustrated by the type used in hotels. Here a program source—consisting usually of two or three radio pick-ups, a microphone for announcements, a phonograph, and a microphone or microphones in the hotel dining room or roof garden—distributes simultaneously three or four programs to loud-speakers located in each of the guest rooms. At each of the speakers a selector switch enables the guest to choose between several radio programs and entertainment originating within the hotel. With speakers located in the public rooms, such a system may be used for announcements and "electric paging."

SIGNAL SYSTEMS

While older and better known than sound transmission systems, the various electro-magnetic signaling devices for buildings have also shown striking progress in recent years and are today available in many new and more useful forms. Such systems may be divided according to whether the signal is of manual or automatic origin, audible or visible, and whether the system is general or selective. Practically any desired combination of these various factors is possible, and a signal system may be extremely simple or exceedingly complex depending on the function it is designed to perform. Audible signals range from the ordinary buzzer or bell—

(Continued on page 60)

MAKING TIME ON THE *World's Largest Factory Building*



PROGRESS VIEW. Ford Motor Company's new Press Shop comprises 3 major units—at the left a two-aisle building 180 ft. by 292 ft.; at the center, a four-aisle building 240 ft. by 933 ft. at the extreme right, and extending at right angles from the center building, a five-aisle building 340 ft. by 1260 ft. (For the permanent foundations, Carnegie-Illinois Steel Corporation supplied some 24,600 tons of Steel H-Piles, set another world's record—the greatest lineal footage of steel bearing piles, 929,245 lineal feet, ever driven on a single industrial undertaking.)

"RARING TO GO!" A battery of five locomotive cranes, just arrived at the site and ready to set steel. Significant of American Bridge Company's erection facilities, ten locomotive cranes and one crawler crane were used in erecting this huge plant.

● (Albert Kahn Inc., Architects and Engineers).

Some 27,500 tons of structural steel fabricated and erected in 190 calendar-days!

WITH approximately 17 acres under roof, the Ford Motor Company's new press shop at the Rouge Plant, Dearborn, Mich., today ranks as the largest factory building in the world.

Three major structures, with minor constructions for contributory facilities, comprise an integrated shop unit engineered for maximum operating efficiency. Because of

its extensive steel-framed first floor, an available operating space nearly double the ground floor extent is provided. Construction is characterized by long-span interior column bays with adequate crane service facilities throughout all first floor areas.

The rigorous demands of a 190 calendar-day schedule which governed the fabrication and erection of the huge steel tonnage involved, made the time element of vital importance. Here again American Bridge Company's trained personnel, large plant capacity and ample erecting facilities made it possible to meet the exacting requirements of the Ford project satisfactorily, and ON TIME.

AMERICAN BRIDGE COMPANY

General Offices: Frick Building, Pittsburgh, Pa.

Baltimore · Boston · Chicago · Cincinnati · Cleveland · Denver · Detroit
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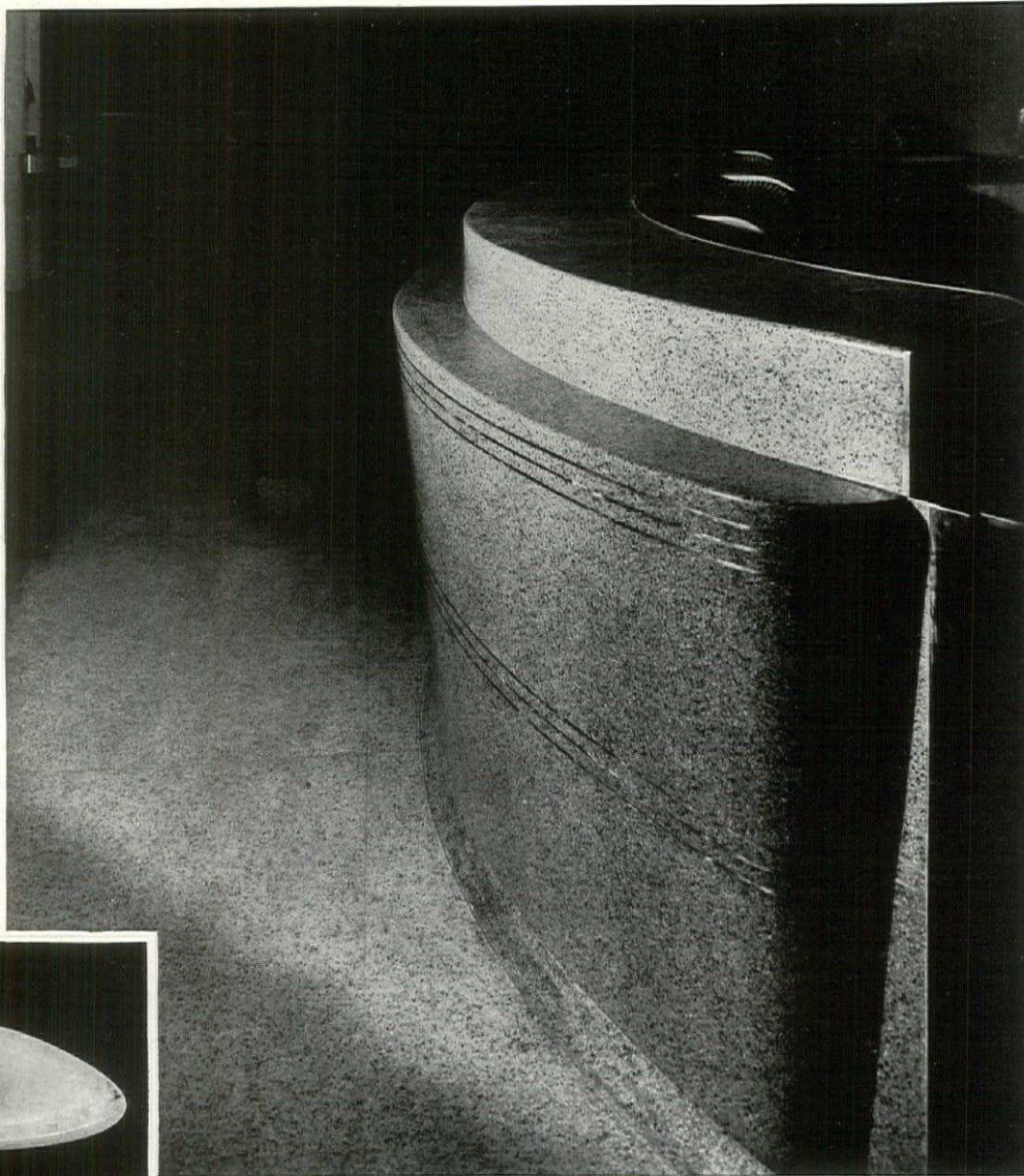
Columbia Steel Company, San Francisco, Pacific Coast Distributors · United States Steel Products Company, New York, Export Distributors

UNITED STATES STEEL

Terrazzo, *a tough customer,* wears the high hat well



Terrazzo floors and counter fronts, risers and treads on stairs are important features of the new bank quarters recently opened in buildings at Rockefeller Center, New York.



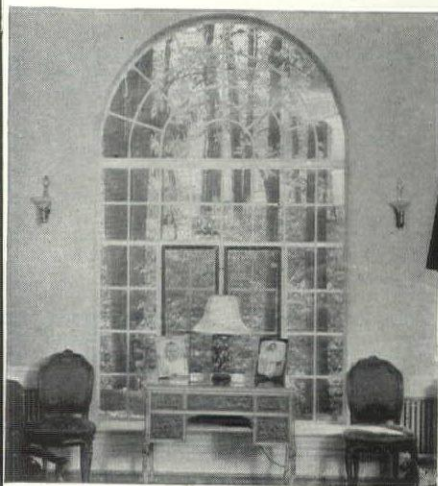
TERRAZZO is an amazingly versatile material—a sort of “shirt sleeve” and “high hat” material in one. It can take the toughest kind of scuffing wear year after year. Yet at the same time it’s as dressy as Beau Brummel—a perfect vehicle for the most modern design. Architects like these characteristics of terrazzo—

plus the fact that terrazzo can be as individual and as colorful as you care to make it. And clients like terrazzo for additional reasons—it is economical, hard to stain, easy to keep clean. For detailed information write the National Terrazzo and Mosaic Association, 1406 G Street, N.W., Washington, D. C.

THE NATIONAL TERRAZZO AND MOSAIC ASSOCIATION

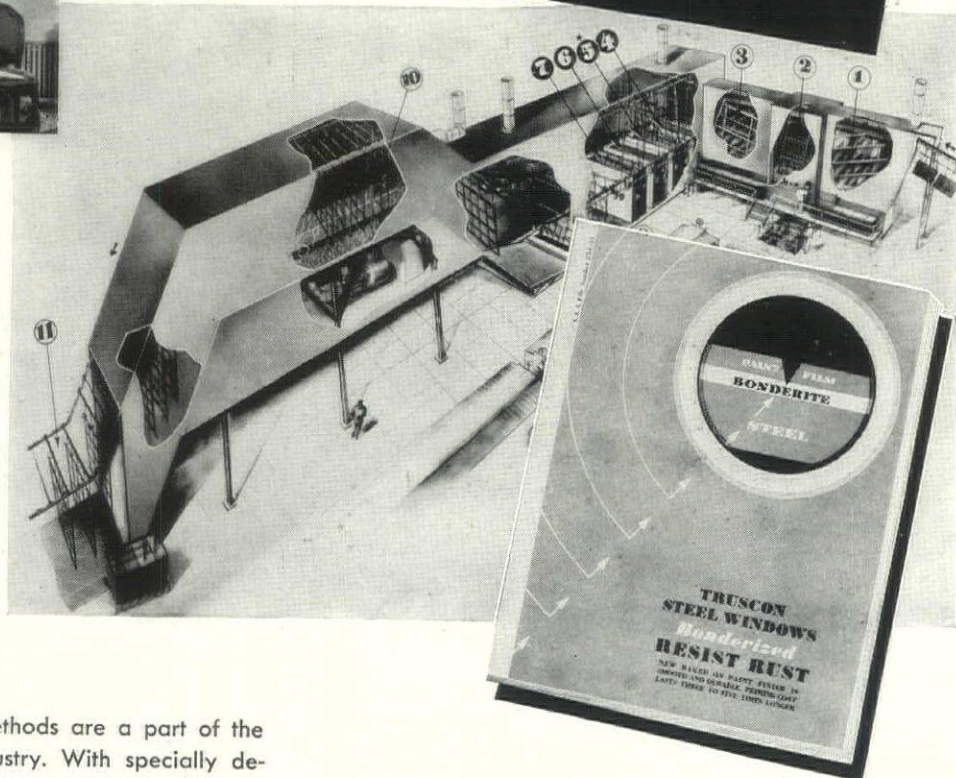
TRUSCON STEEL PRODUCTS

**FINISHED FOR PROTECTION
FROM RUST**



The Truscon Bonderizing equipment in their Youngstown, Ohio plant showing how production automatically travels through all the cleaning, Bonderizing and finishing operations.

The Truscon book describing the Bonderizing Process. Sent by Truscon upon request.



Modern mass production methods are a part of the Steel Building Products industry. With specially designed equipment, Truscon Steel Company hangs their fabricated window and certain other products on a continuous conveyor which carries them through cleaning, rinsing, Bonderizing, primer paint dipping and baking.

With Bonderizing under the primer, the final coats of paint are assured a more substantial base than can be provided in any other way. Bonderizing produces a phosphate coating that is integral with the metal. It

sets up a barrier to moisture, assures better adhesion for the primer and adequate protection from rust.

Bonderizing gives steel products the ability to stand rigorous exposure and assures the building owner a new measure of maintenance service. Bonderizing gives the finish three to five times greater effectiveness than a finish over bare metal. It is an economy feature that saves reconditioning costs and provides better appearance.

PARKER RUST-PROOF COMPANY • 2180 E. MILWAUKEE AVE. • DETROIT, MICHIGAN

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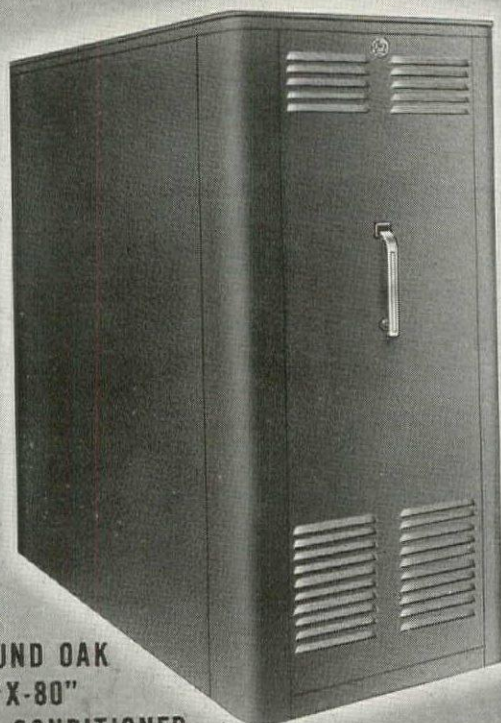
It deals specifically with rust inhibiting finishing methods on many types of architectural iron and steel products and indicates a solution of the finishing problem on galvanized units. Write today for your copy.



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Processes **CONQUER RUST**
BONDERIZING • PARKERIZING

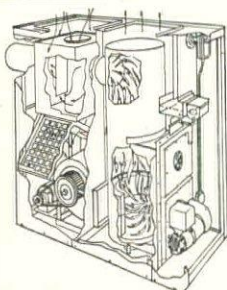


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"X-80"
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Now, for the first time, Round Oak provides architects, builders and home owners with a low cost, oil fired winter Air Conditioning furnace for small homes—a unit so efficient and revolutionary that it is practical even in houses costing as little as \$4000. X-80 Air Conditioner is a special steel furnace designed as a complete unit with the famous Round Oak Contraflow burner and efficient circulating, purifying and humidifying units. It produces 80,000 BTU's per hour, which is sufficient for the average five to seven room house. The attractive cabinet is rugged 24 gauge steel with Hammerloid blue finish. Though low in price, X-80 is built to the rigid standards of the Round Oak Company—one of America's oldest manufacturers of heating equipment. Investigate this amazing unit before you buy or specify heating for any home. See your Round Oak dealer or mail coupon below for complete information.



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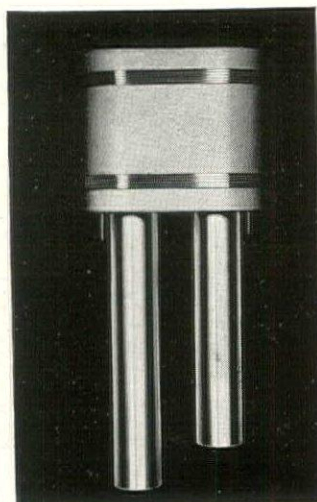
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Please send literature and complete information describing your
☐ X-80 AIR CONDITIONER, ☐ LARGER EQUIPMENT

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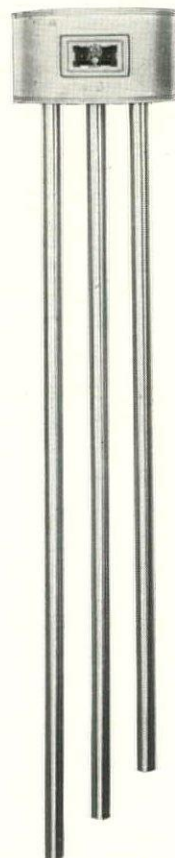
PRODUCTS and PRACTICE

(Continued from page 56)

whose only function is to make a noise—to the modern musical and decorative chime. Chimes are available which sound a series of distinctive notes, thus indicating the signal's point of origin. Visible signals may take any form from blinker-lights to nurses' and doctors' call boards. Combined



Electric door chimes: above, left, Rittenhouse "Sentinel," The A. E. Rittenhouse Co., Inc., Honeoye Falls, New York; right, "NuTone Chime", style B, NuTone Chimes, Inc., Cincinnati, Ohio; below, Edwards "Cathedral" 3-tube chime, Edwards and Co., Inc., Norwalk, Conn.



audible and visible signals, in which sound is used to attract attention and a visible indicator to show the station from which the signal originates are also used. The simple "break glass" fire alarm may now be had equipped with an automatic fire detector which sounds the alarm whenever sudden and extreme temperature changes occur in its vicinity, and the automatic burglar alarm and manually operated hold-up alarm attached so as to actuate sprinklers or tear gas ejectors. Both are now made in a number of forms for every possible purpose.

The purely automatic signal reaches its most elaborate form in the so-called "automatic program control" for school buildings, a device which actuates bells or other signals at predetermined intervals, and which may be arranged for 6, 12, 18, and 24 hour schedules, and for 2, 4, 6, and 8 circuit programs. Schedules are easy to set up and change.

Clock systems operating from a central master clock are a special form of intracommunication used in large buildings where a great many clocks

are required. In one form, such clocks are synchronized on minute or half-minute intervals from the control; in another clocks operate on their own motor controlled directly from the frequency of the alternating current with which they are supplied, but are reset in case of current interruption by a central control device.



Below: Ladies' Lounge—carpeted with Pawtucket Hookloom.



ESQUIRE THEATRE
 Theatre Consultants:
PEREIRA & PEREIRA
 Offices of W. L. Pereira, Architect
 Carpet Counsel:
BIGELOW WEAVERS



Sold and installed under Collins & Aikman License

IN discussing the floor coverings of Chicago's beautiful new Esquire Theatre, Mr. William L. Pereira says, "We wished to eliminate patterns and work with strong color. We found the desired variety in color in Bigelow's standard line.

"Because of the unusual design—and because of our wide experience in theatre carpeting—we felt that the modern theatre could not allow seams. We therefore chose Bigelow Lokweave* Looptuft for the main

floor. We find this texture-y carpet extremely practical. There is no evidence of the 'paths' usually found in heavily trafficked plain carpeted rooms."

When you face a carpeting problem, why not put it up to Bigelow's Carpet Counsel experts? Contract Dept., Bigelow-Sanford Carpet Co., Inc., 140 Madison Ave., New York.



EASY TO INSTALL

KIMSUL[®] REG. U.S. & CAN. PAT. OFF. *Expanding Blanket* INSULATION

These photographs show the ease and with which Kimsul* can be installed at the points where protection against heat loss is most essential.

- (A) **Side Walls:** Kimsul comes in blankets the right size to fit snugly without cutting or fitting in standard spaces between studs. Merely nail on at top . . . pull down like a roller blind and fluff . . . then fasten at bottom. Just a few moments more to install a continuous, unbroken blanket of efficient insulation.
- (B) **Sloping Roofs** usually constitute one of the most difficult insulating jobs. Yet it is comparatively simple when Kimsul is used. Fasten at top, pull down like a shade and fasten at bottom. Then attach with laths along the edges. The Kimsul stays there . . . permanently.
- (C) **Attic Floors:** An unfinished, uninsulated attic floor is a terrible waste of heat . . . with Kimsul that can be corrected quickly and inexpensively. Install Kimsul blankets directly on the plaster base, between floor joists, expanding them as they are installed. When necessary to use two or more lengths of Kimsul the splices should be made by overlapping the two overlapping ends between laths.

Kimsul is now being Regularly Advertised in "Better Homes and Gardens" and "American Home," having a combined circulation of more than 3 million copies monthly. If you haven't the facts about this modern insulation, use the coupon below.

KIMBERLY-CLARK CORPORATION (Kimsul Division), Neenah, Wisconsin
Established 1872

NEW YORK, 122 East 42nd Street • CHICAGO, 8 South Michigan Avenue

Mail me, without obligation, copy of booklet describing Kimsul, also a full sized sample.

Name _____

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City _____

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See that the insulation you choose meets all these requirements.

- 1 **EFFICIENCY:** ("K" factor .27) Kimsul is made of wood fibres whose natural high resistance to heat is increased by interweaving, creping, and laminating.
- 2 **FLEXIBILITY:** Pliant as cloth, Kimsul can be tucked snugly into odd spaces, around windows, electric wires, etc.
- 3 **PERMANENCE:** Processed with asphalt and non-toxic chemicals, Kimsul is highly resistant to fire, vermin and moisture.
- 4 **NON-SETTLING:** Kimsul stays put. It will not shred, sift, nor pack down . . . is unaffected by settling of walls, or vibrations.
- 5 **LIGHTNESS:** 1,000 square feet of Kimsul weigh only 131.5 pounds. It adds practically no structural load to a house.
- 6 **PROPER THICKNESS:** Kimsul's one-inch thickness provides maximum returns in comfort and fuel savings for the money invested.
- 7 **NO WASTE:** Every square inch can be used. Odd pieces can be employed as caulking.
- 8 **EASE OF HANDLING AND INSTALLING:** Kimsul is extremely light and is made the right width to fit between studs . . . practically no cutting or fitting needed.
- 9 **EXPANDABILITY:** Kimsul blankets are made in 20' lengths, expandable to from 8 feet to nearly 10 feet by nailing one end to the header, drawing down on the free end, as you would a roller shade, fluffing, and fastening to the floor plate. This Kimsul feature speeds up work and reduces cost.

*Reg. U. S. & Can. Pat. Off.

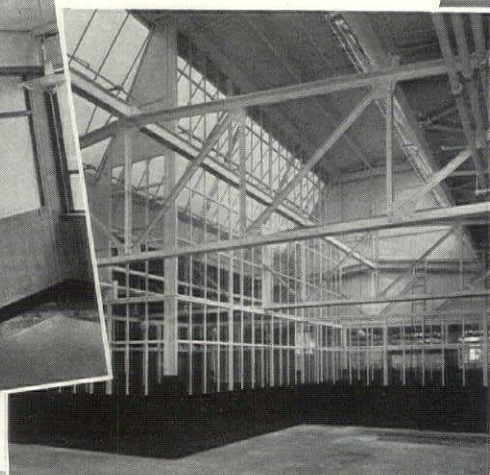
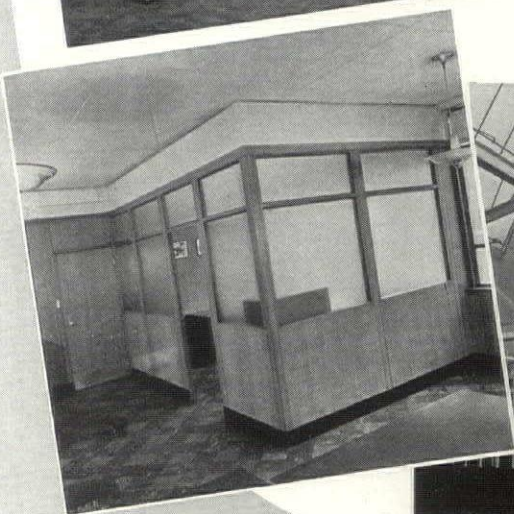
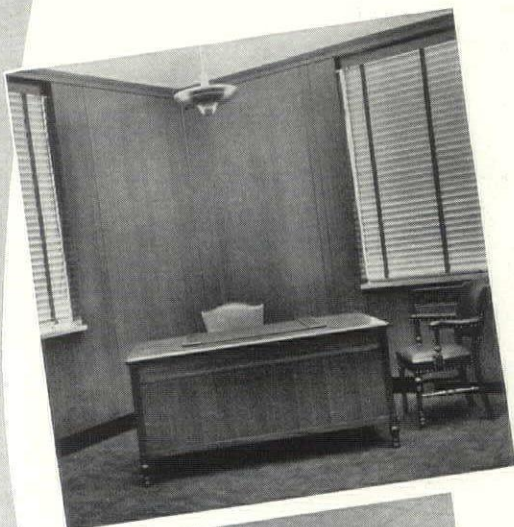
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THE MILLS COMPANY

"A Mills Metal Partition for Every Purpose"
965 WAYSIDE ROAD • CLEVELAND, OHIO



LETTERS

(Continued from page 38)

that the Wheaton College competition, with more than 250 projects submitted, some by the best architects' offices in the country, could have been disposed of in less than one week, in all fairness to the competitors. Even if only 50 out of 250 presented an interesting solution or an individual feature of great merit, the final selection of the winner must have required a considerable amount of time. . . .

GABRIEL MASSENA

Wilmington, Del.

Forum:

. . . We believe in the competitive method of selecting architects for buildings of an important nature. The competitive method necessarily involves a certain amount of waste but the results are, in our opinion, worth this economic waste. It is not at all certain that an owner would be assured of the best design for his purpose by commissioning an architect, however great his reputation. Competitive designs which attempt to meet his particular problem will give him much more assurance that all aspects of his problem have been carefully examined.

Artistic merit cannot be measured by economic standards. The architect of

Santa Sophia is said to have made two unsuccessful attempts which collapsed before he finally succeeded in enclosing the largest space then known under one roof. We are of the opinion that the result has justified the waste involved.

We do not agree that the chances for young men to succeed in competitions like Wheaton's are extremely small. In our opinion, the winning design was rightly placed first among the designs exhibited. The winners were two young men who were able to solve the problem better and more simply than a number of experienced architects who also competed. . . .

MOORE & HUTCHINS

New York, N. Y.

Forum:

. . . I have entered several competitions and can say that I believe that the cost of preparing plans is practically zero. Most architects today are not particularly busy, and to say that doing a competition in spare or leisure time is expensive is equivalent to saying that it is expensive to read a book or take a walk. Perhaps Benjamin Franklin's dull and patently false aphorism "Time is money" is what creates the belief that competitions are expensive. However, if an architect hires others to do the competition—or at least make the drawings—a peculiar condition exists; either the architect is so busy he

must hire additional men (in which case there is no object in entering the competition), or he is hiring men—in which case he is not busy—to do work he could do himself (in which case he has no justification to complain of the expense). . . .

JOHN THOMAS GRISDALE

Philadelphia, Pa.

Forum:

. . . The number of entries for the Wheaton Competition was indeed excessive—but that, I maintain, was because we have too few competitions for exciting buildings. If competition were a regular happening, architects could, and would pick and choose. The "unjustifiable cost" would be cut down. . . .

HENRY S. CHURCHILL

New York, N. Y.

Errata

The Architectural Forum regrets: omission of credit to Clow Gasteam Radiator Co., Shreveport, La., for heating system specified by Architect Marshall Walker (July '38, p. 35); revealing in production designs and service equipment of Architects Ames & Atkinson and Architect Douglas McFarland, of Los Angeles, Cal. (July '38, pp. 56 and 61).

Credit for the heating unit on the Hays Simpson & Hunsicker house (Arch. Forum, July '38, p. 25), should read: Winter Air Conditioning Unit—Niagara 220—94 D. Manufacturer—The Forest City Foundries Co., Cleveland, Ohio.—Ed.

4300 Gym Instructors CAN'T BE WRONG

Every test proves Seal-O-San a more economical and tougher floor finish

Architects who specify Seal-O-San know that it can pass every severe test demanded of a gymnasium floor finish.

Today more than 4300 schools in all parts of the country have Seal-O-San finished floors. And here's why:

Seal-O-San makes the floor non-slippery. Its penetrating seal forms a beautiful, protective surface finish that locks out dirt and moisture. This tough finish will not crack, chip, or peel. Successfully it resists all gymnasium activities.

Also, consider Seal-O-San economies. Applied with a lambs-wool mop, it assures real savings over costly hand-brushed finishes. It offers maintenance savings too, because a Seal-O-San finished floor seldom needs scrubbing.

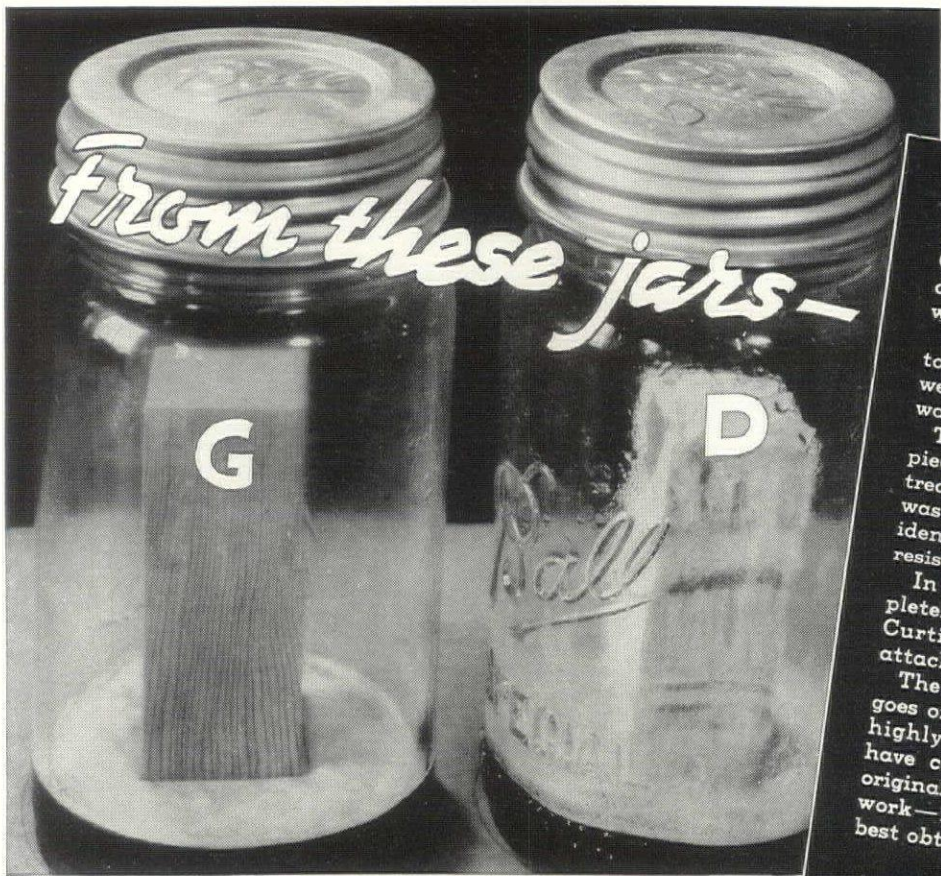
A detailed folder and specifications on Seal-O-San will gladly be sent to architects. Write for your copy—today.



SEAL-O-SAN

SEAL AND FINISH FOR GYMNASIUM FLOORS

MADE EXCLUSIVELY BY
The HUNTINGTON LABORATORIES Inc.
DENVER HUNTINGTON, INDIANA TORONTO



EIGHT YEARS AGO—
 history was in the making in the Curtis Laboratory. For the newly developed Curtis Toxic Treatment was to be tested!
 Agar jelly was placed in each jar to provide fungus food. The jars were sterilized, and *Lenzites trabea* was placed in each.
 Two test blocks were cut from a piece of sapwood. Block "G" was treated with Curtis Toxic. Block "D" was not. Otherwise conditions were identical. No untreated wood could resist such a severe test.
 In a short time "D" was completely decayed. But "G," with the Curtis treatment, was not even attacked.
 The search for a better toxic still goes on, but continuous tests and highly satisfactory field service have convinced Curtis that their original toxic treatment for woodwork—never changed—still is the best obtainable.

came the Secret of Woodwork that resists decay!

This is a story of a war that was won—a war against *Lenzites trabea*!

Lenzites trabea is the most common species of fungi that attacks exterior woodwork. For years, treatments of various oils and salts had been used to resist this destructive agent in structural timbers, but none were satisfactory for builders' woodwork.

Then Curtis went to work. We knew that heartwood had natural ability to resist decay. But the use of heartwood alone in exterior woodwork was out of the question because lumber is not cut that way for commercial purposes. Run of the mill lumber always includes some sapwood. So we set out to develop a treatment that would also make sapwood decay-resistant.

For many months, Curtis research men checked test against test, solution against solution, species against species. Cultures of various fungi were grown in jars, kept in incubators. Two years elapsed before a successful treatment was perfected.

When the secret behind the jars was known, science had won another battle against nature. For then both heart and sapwood of the species used for making exterior woodwork could successfully resist *Lenzites trabea*! And since January 1, 1933, when Curtis started to ship their toxic-treated woodwork, *not one case of decay has been reported in a Curtis-treated product.*

We prefer to call our woodwork decay-

resistant, not decay-proof. But severe tests, made regularly since the present toxic became the standard Curtis treatment, have failed to show any breakdown under decay fungi. In addition, the chemicals used by Curtis in their toxic treatment remain the outstanding agent for the prevention of decay in woodwork!

As with many other important improvements in the industry, Curtis was *first* to supply toxic-treated woodwork. Nearly six years of success stand behind this treatment. Seventy-two years of experience stand behind the name of Curtis Woodwork. Together, these records are your assurance of superior quality and lasting performance in woodwork of all kinds.

CURTIS COMPANIES SERVICE BUREAU

DEPT. AF-8, CLINTON, IOWA

- OUTSTANDING FEATURES OF THE CURTIS TOXIC TREATMENT**
- 1 It is an oil treatment—builds up a surface film, resists grain-raising and swelling, improves putty adherence.
 - 2 Considered to be the most permanent treatment in use today, does not "bloom," evaporate or wash away.
 - 3 It is odorless—the solvent vehicle carries oil and toxic into the wood—then evaporates.
 - 4 It is not harmful to paint, oil stains or varnish.



Canadian Inquiries
 Dept. AF-8
 25 Bayswater Ave.
 Ottawa, Ontario

AND OTHER CURTIS PRODUCTS—Silentite Double-Hung and Casement Windows Exterior and Interior Doors • Entrances Mantels • Frames • Trim • Molding • Panel Work • Cabinet Work • Kitchen Cabinets Stairways • Shutters • Screens • Storm Doors and Windows • Garage Doors • Miterite Door and Window Trim



ARCHITECTS see this as an age of spirited design and pleasing color. Materials and processes are being revolutionized to meet the demands of artist and stylist. Notable among these modern developments is Formed Metal Plumbing Ware.

Your professional eye will tell you that here is a medium for achieving unusual distinction in kitchen and bathroom appointments.

The graceful contours of formed metal fixtures reflect the architect's

appreciation of design. The high-glaze, acid-resisting porcelain enamel, the finest ever developed, offers you wide choice of colors and effective color combinations.

Formed Metal Plumbing Ware for bathrooms, kitchens and laundries is a sound investment for your clients. The permanence of the

glossy beauty is vouched for by the Armco label—the accepted mark of base-metal excellence.

Write us if your files do not contain detailed information on Formed Metal Plumbing Ware. The American Rolling Mill Company, 2441 Curtis Street, Middletown, Ohio.

ARMCO Ingot Iron

A NAME KNOWN TO MILLIONS



CREATE WORD-OF-MOUTH ADVERTISING FOR THE BUILDINGS YOU DESIGN



Aristocrat Clock Co. is alert to the advertising value of this striking floor in its New York showroom. You can create equally striking floors when you use Armstrong's Linoleum. Here the field is brown Marbella linoleum with the design in black and white linoleum.

With Special Floors Like This

A CLEVERLY designed floor like the one above creates priceless publicity for a store or office building—and for the architect who planned it. Visitors talk about it. Newspapers print pictures of it. Occupants point it out to their friends. As a result, the building is called to the attention of scores of prospective customers or tenants who might never have heard of it otherwise.

Distinctive floors with inset trade-marks or symbols of merchandise are good showmanship in commercial buildings. They are easy and inexpensive to create. Almost any design that can be drawn can be reproduced in Armstrong's Linoleum. Practically any color scheme can be produced from more than 200 patterns

and colors available in this line.

In addition to its decorative value, linoleum offers other practical advantages. It is easy and economical to maintain with Armstrong's Floor Cleaner and Lino-gloss Wax (write for samples). Linoleum can be quickly installed over old floors, without interrupting business. It is long-lasting, quiet, colorful, and comfortable.

In Armstrong's Linoleum, the rich colors run through the full thickness of the composition.

Scuffing feet do not wear them off.

For public buildings, Armstrong manufactures the only complete line of resilient floors—Linoleum, Linotile (Oil-Bonded), Rubber Tile, Cork Tile, and Asphalt Tile. See *Sweet's*, or write today for a free, color-illustrated copy of "Better Floors for Better Business," containing the latest ideas in modern floor design. Armstrong Cork Products Company, Building Materials Division, 1203 State Street, Lancaster, Pennsylvania.



RUBBER TILE • LINOTILE (OIL-BONDED) • ASPHALT TILE

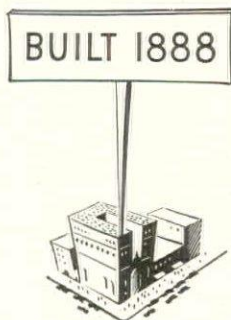
Armstrong's **LINOLEUM**
and **RESILIENT, NON-CERAMIC TILES**

CORK TILE • LINOWALL • ACOUSTICAL CEILINGS



ARCHITECTURALLY SPEAKING

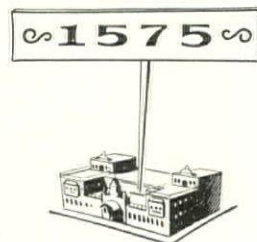
by OTIS ELEVATOR COMPANY



Any architect would swell with pride if a person were to point out a building he had designed, and say, "There's a building that need never grow old." Here is an actual example of one that hasn't: A bank building in Omaha has just installed four new Finger-Tip Signal Control elevators. This building was built—and was built—in 1888, and at the age of 50 years is now equipped with a complete new elevator plant, including the most modern control, signals and door operation.



Not that this is a record, by any means. A few years ago a modern Finger-Tip Control elevator was installed in a building in Manila erected in the year 1575.



These older buildings point out a warning. If a new building is not equipped with the latest in automatic elevator control, it may find itself actually out-of-date in comparison with a much older building down the street. And this could be especially embarrassing if the buildings were in direct competition for tenants.

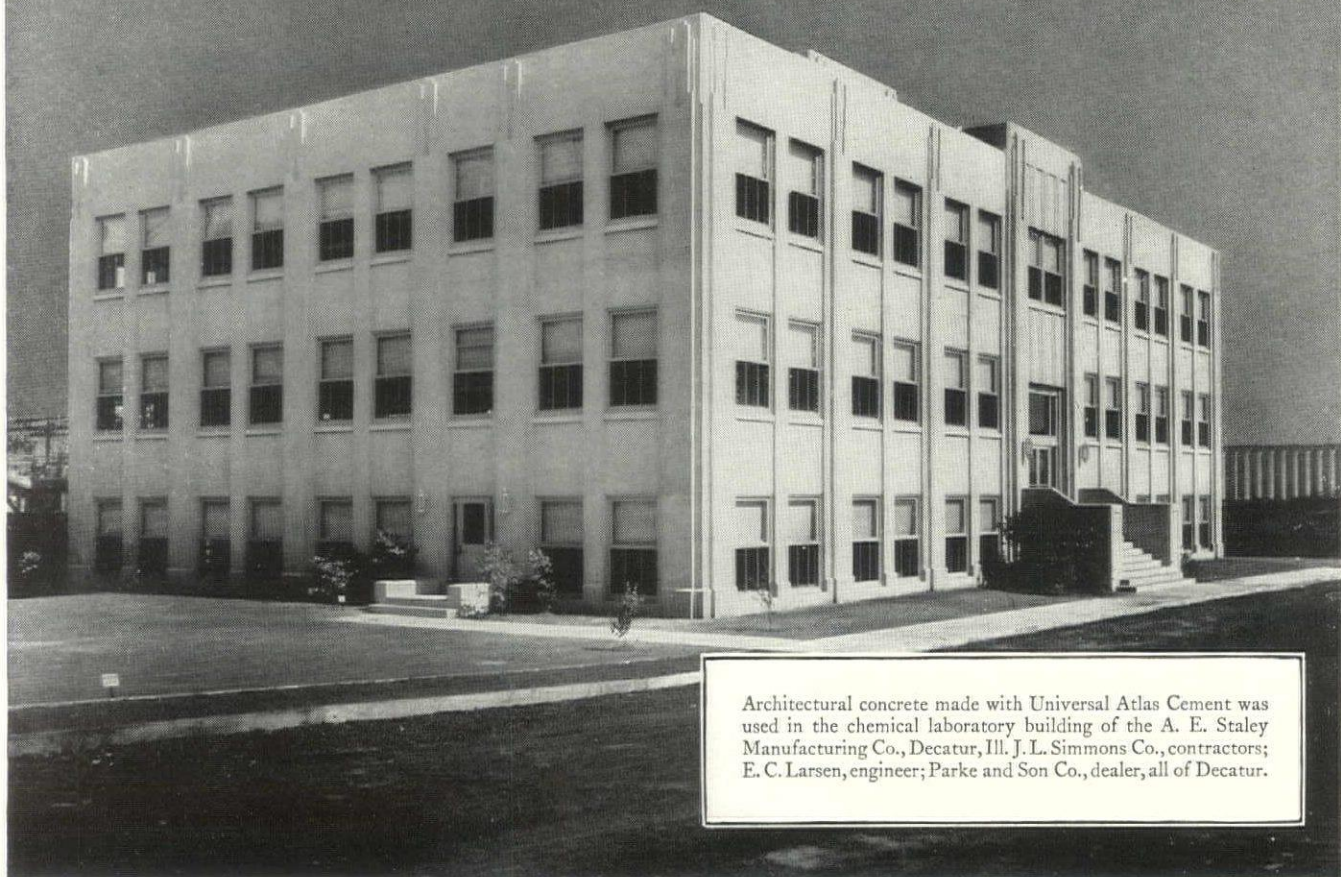


Another way to insure good elevator service is to recommend that the new elevators be placed under maintenance by their manufacturer. The chances are that the owner of a new Otis elevator will use Otis Maintenance anyhow—about one out of three does, and the rate is increasing. But it is a great satisfaction when the elevator contract and the maintenance contract are signed at the same time, to know that the elevators will deliver all the performance built into them.



An architect's idea of heaven is probably the place where a building's electrical and mechanical equipment operates with complete satisfaction from the day it is installed. Otis Maintenance is your guarantee (and the owner's) that the elevator equipment will do just that. We suggest that you get further details from your local office of the Otis Elevator Company.

Now—Industrial Buildings *can be Beautiful*



Architectural concrete made with Universal Atlas Cement was used in the chemical laboratory building of the A. E. Staley Manufacturing Co., Decatur, Ill. J. L. Simmons Co., contractors; E. C. Larsen, engineer; Parke and Son Co., dealer, all of Decatur.

New beauty now available to construction through architectural concrete made with Universal Atlas Cement

Thanks to architectural concrete, new avenues of architectural beauty are open to industrial construction—usually at a saving in cost! For with architectural concrete, structural parts and architectural ornamentations are cast as a unit. Result: distinctive buildings of moderate cost that are unsurpassed in strength, permanence, fire safety, and that require little or no upkeep.

MAIL COUPON which will bring you further facts on this important new development, and examples showing its use. Universal Atlas Cement Co. (United States Steel Corporation Subsidiary), 208 S. La Salle Street, Chicago.

UNIVERSAL ATLAS Cement Co.
208 South La Salle Street, Chicago, Illinois

Please send me further information on Architectural Concrete.

Name.....

Address.....

City.....State.....

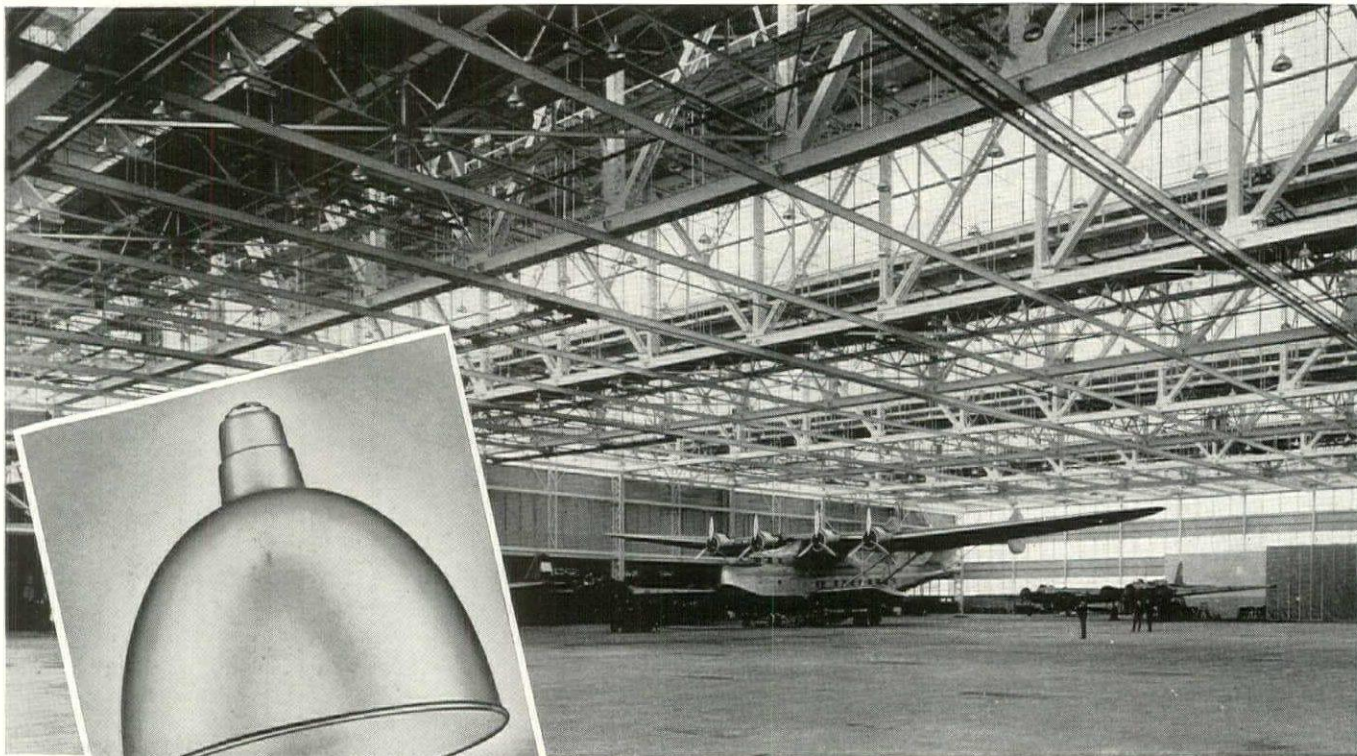
AC-3

Universal Atlas

CEMENTS



NOTABLE APPLICATIONS OF WESTINGHOUSE LIGHTING EQUIPMENT
 No. 3. Glenn L. Martin Company Plant, Baltimore, Md.
 Architects: Albert Kahn, Inc.



ABOVE—Aluminum Semi-Specular Concentrating Reflectors are mounted at 42 feet with 12' x 16' spacings.

BELOW—Silvern Luminaires furnish uniform, high intensity, comfortable illumination in office and engineering quarters.

UNDIVIDED RESPONSIBILITY

FOR PLANT AND OFFICE LIGHTING

AWARDED TO WESTINGHOUSE

Last word in architectural engineering and construction is the Glenn L. Martin Company aviation plant at Baltimore. To select suitable lighting units for this magnificent plant, representatives of the Architect and Owner met at the Westinghouse-Cleveland Works... and witnessed demonstrations of installed lighting under normal factory lighting conditions.

Subsequent orders included 660 Aluminum Semi-Specular Concentrating Reflectors—some of which can be identified in the view of the main assembly floor shown above. Included also were 301 Glassteel Diffusers, for close-seeing tasks in shop areas; 71 Vapor-proof Reflectors;

558 Silvern Semi-Indirect Luminaires, for office and engineering rooms; and 265 Sollite Enclosing Globes, for corridors and incidental non-manufacturing locations.

This notable application is typical of the way in which Westinghouse is able and ready to assume *undivided responsibility* for all industrial plant and office lighting requirements.

For full details on recommended practice, available to architects and others who are concerned with industrial lighting projects, call your nearest Westinghouse Distributor; or write to Westinghouse Electric & Manufacturing Company, Lighting Division, Edgewater Park, Cleveland, Ohio.

WHEN YOU THINK OF *Lighting Equipment* THINK OF



Westinghouse

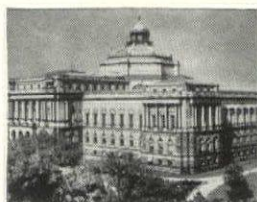
WHEN WASHINGTON SWELTERS



Capitol of the United States. Carrier Corporation, Syracuse, N. Y., Contractor; Charles S. Leopold, Consulting Engineer. "Freon" air conditioning by Carrier Corporation.

12,000 TONS OF "FREON"* AIR CONDITIONING keep government buildings cool!

Library of Congress Addition (right)—Jacobsen Bros., Chicago, Contractor; Pearson & Wilson, Architects and Consulting Engineers. "Freon" refrigeration for air conditioning by York Ice Machinery Corporation.



Department of Justice Building (left)—G. A. Fuller Co., Contractor; I. H. Francis, Consulting Engineer. "Freon" refrigeration for air conditioning equipment by York Ice Machinery Corporation.



Dep't of Agriculture (Administration Bldg.) (left)—Riggs Distler, Contractor. Designed by Nat'l Park Service. Charles Leopold, Consulting Engineer. "Freon" air conditioning by Frick Co.



Post Office Building (right)—McCloskey & Co., Contractor; Mehring & Hansen, Sub-Contractors; Syska & Hennessey, Consulting Engineers. "Freon" refrigeration for air conditioning by York Ice Machinery Corporation.

Department of Interior Building (Old) (below)—National Park Service, Consulting Engineer. Contractor and manufacturer of "Freon" air conditioning equipment—York Ice Machinery Corporation.



Archives Building (below)—G.A. Fuller Co., Contractor; Clyde R. Place, Consulting Engineer. "Freon" air conditioning equipment by York Ice Machinery Corporation.



Senate Office Building (above)—G. A. Fuller Co., Contractor; George A. Weschler, Consulting Engineer. "Freon" refrigeration by York. Additional air conditioning by Raiser Heating Co.



New House Office Building (left)—Pennsylvania Engineering Co. of Philadelphia, Contractor; George Weschler, Consulting Engineer. "Freon" air conditioning by Pennsylvania Engineering Co.



Old House Office Building (right)—Pennsylvania Engineering Co. of Philadelphia, Contractor. Charles S. Leopold, Consulting Engineer. "Freon" air conditioning by Pennsylvania Engineering Co.

THE world's largest refrigerating machinery installation for air conditioning cools the Capitol group of buildings in Washington, D. C. Six 800-ton York units, using "Freon-12" refrigerant, give it a total capacity of 4,800 tons! Plants in other government buildings in Washington bring the total amount of "Freon" air conditioning to 12,000 tons!

"Freon" refrigerants are non-poisonous, non-flammable, non-explosive, practically odorless. They have been tested by the U. S. Bureau of Mines, and meet all specifications set by the Underwriters' Laboratories of Chicago. Make sure "Freon" refrigerants are included in your specifications for air conditioning.



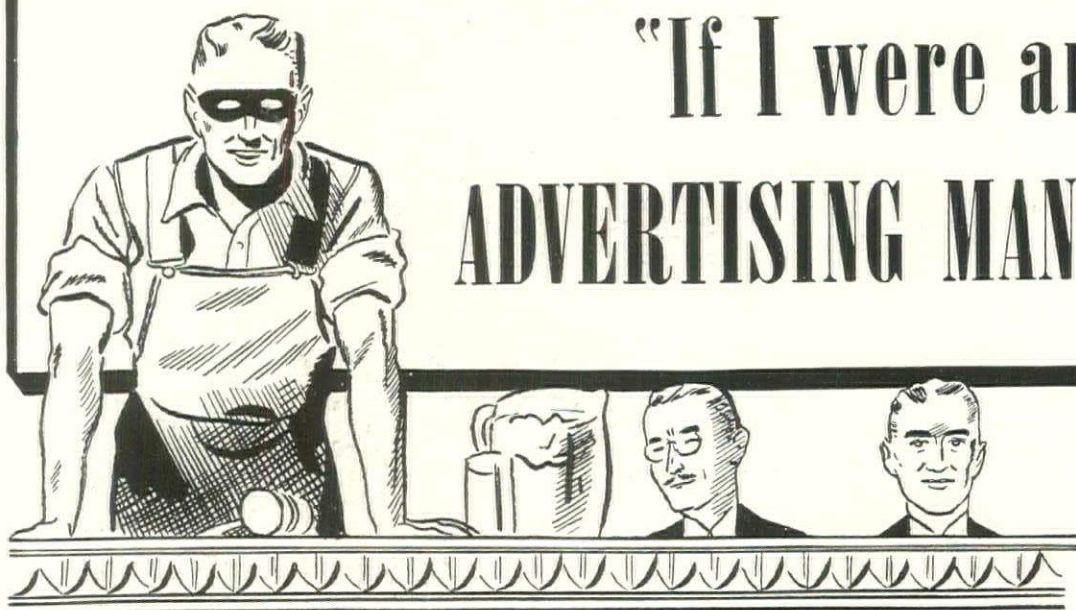
FREON

REG. U. S. PAT. OFF.

safe refrigerants

* "Freon" is Kinetic's registered trade mark for its fluorine refrigerants.

KINETIC CHEMICALS, INCORPORATED
TENTH & MARKET STREETS
WILMINGTON, DELAWARE



That's just one of the talks to be delivered anonymously by a masked speaker that will set every man thinking at the Annual Conference of National Industrial Advertisers Association in Cleveland, September 21-23. A second masked speaker will tell what he would do if he were a publication representative.

We're not going to tell you much here—just highlight the program enough to make your mouth water and your brain tingle.

T. M. Girdler, Chairman, Republic Steel Corporation, is scheduled for the opening address and when "T. M." talks he says something.

J. H. McGraw, Jr. will talk on "What I Would Do Now If I Were An Industrial Advertising Manager."

The new Publisher's Statement will receive full discussion.

Clinic sessions, so popular last year, will again cover a wide range of interesting subjects. Two half-day sessions instead of one.

A general conference session will cover such subjects as "Preparing the Plan", "How to Gather Usable Material", "Copy Technique", "How to Sell Management", "Co-ordinating

Sales and Advertising" and "How and Why to Use an Industrial Agency."

Another session will deal with "Problems of the Small Advertiser", "Production Problems", "Public Relations"—and there are many others.

If I were an Advertising Manager, I certainly would start now to make plans to attend the 16th N. I. A. A. Conference even if I had to hitch-hike to Cleveland. And I would send in my advance registration now to—Ed. Bossart, Bailey Meter Company, Ivanhoe Road, Cleveland, Ohio.

IF I EMPLOYED AN ADVERTISING MANAGER—I would make certain that he attended this Conference, because changing times and markets demand a changed viewpoint—a new viewpoint that can be obtained only by hearing discussions by men whose experience is up-to-the-minute—right up to September 21st.



NATIONAL INDUSTRIAL ADVERTISERS ASSOCIATION

100 EAST OHIO STREET

CHICAGO, ILLINOIS

Von Duprin



So Much for So Little

When you install Von Duprin latches on the exit doors of a building you make sure that people will be able to get out.

Through the many years to come, those devices will provide safe, quick exit with practically no maintenance cost. Then, when the emergency comes . . . when the feel of panic stirs in your building . . . those Von Duprins will release the masses of humanity . . . surely . . . safely . . . instantly!

The price of all this security? So little it is an insignificant item in the cost of the building.

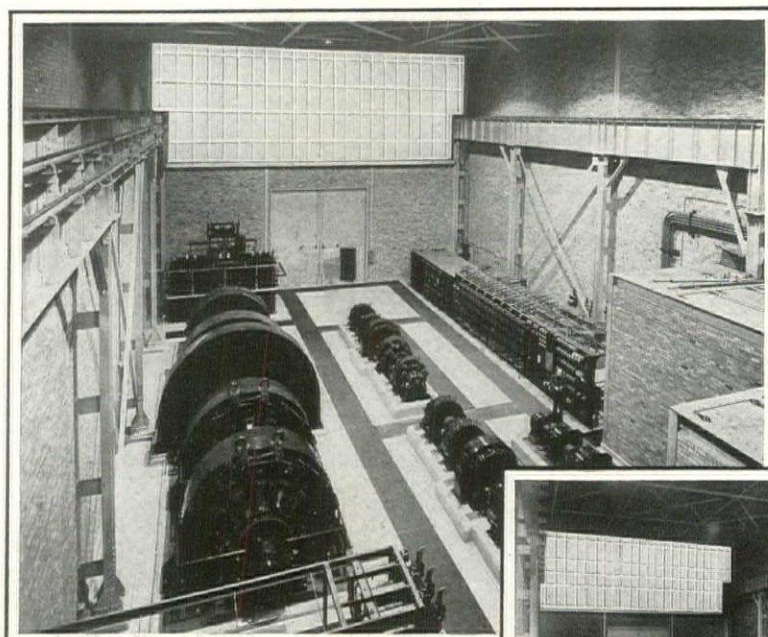
So much for so little! Merely by specifying and insisting on the genuine Von Duprin.

VONNEGUT HARDWARE CO., INDIANAPOLIS, IND. . . . Von Duprin
Fire and Panic Exit Latches are Listed as Standard by Underwriters Laboratories, Inc.

Make Exit Sure . . . At Every Door . . . with Von Duprin!

Regardless of Widths, Heights or Special Requirements

BYRNE doors

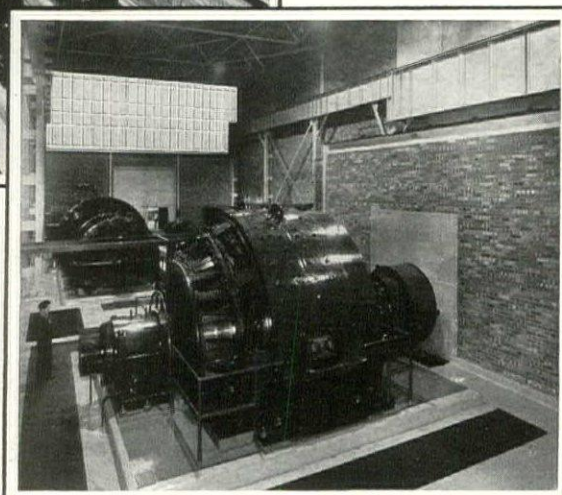


permit

UNRESTRICTED
DOOR DESIGN

Partial List of BYRNE DOOR USERS

American Airways, Chicago, Ill.
Babcock & Wilcox Co., Barberton, Ohio
Beaumont, Tex., Municipal Airport
Billings, Mont., Municipal Airport
Booth-Henning, Inc., Dallas, Tex.
Denver, Colo., Municipal Airport
Fort Worth, Tex., Municipal Airport
Galveston, Tex., Municipal Airport
General Electric Co., Schenectady, N. Y.
Great Lake Steel Co., Detroit, Mich.
Joliet, Ill., Municipal Airport
Metropolitan Water Commission,
Boston, Mass.
National Guard, Boston, Mass.
National Guard, Newark, N. J.
National Guard, Philadelphia, Pa.
Nichols Copper Co., El Paso, Tex.
Palwaukee Airport, Chicago, Ill.
Pittsburgh, Pa., Municipal Airport
Providence, R. I., Municipal Airport
Rochester, N. Y., Municipal Airport
San Antonio, Tex., Municipal Airport
Transcontinental & Western Air,
Kansas City, Mo.
Tyler, Tex., Municipal Airport
U. S. Army, Aberdeen, Md.
U. S. Army, Barksdale Field, La.
U. S. Army, Fort Benning, Ga.
U. S. Army, Fort Bragg, N. C.
U. S. Army, Middletown, Pa.
U. S. Army, Sacramento, Calif.
U. S. Coast Guard, Miami, Fla.
U. S. Navy, Norfolk, Va.
Wm. K. Vanderbilt, Miami Beach, Fla.



As effective as a solid glass wall, two snugly fitting Byrne doors separate each end of the motor room from furnaces at the National Steel Corp. Great Lakes plant at Ecorse, Mich. They open automatically in less than 30 seconds, permitting crane entrance when needed. Perfectly adapted for installations of this type, Byrne doors saved the cost of an electric crane by providing instantaneous communication to the motor room.

6 Byrne door units each 50 meters wide have just been erected for the newly completed aircraft factory of the Fiat Societa Anonima at Torino, Italy. High speed, dependable, mechanized operation which released man power for more important duties brought Byrne the award.

Behind Byrne doors is a ten year record of successful achievement in meeting unusual problems of industrial door construction. Basic simplicity and perfected design permit sturdier construction at lower cost. Reclaimed floor space and heating economy frequently save the entire cost of installation. Byrne doors are especially suitable for Large Openings, Crane Entrances, Hangars, Movable Steel Partitions and Special Enclosures. Wherever weather-tight construction and high speed opening and closing are desirable, they provide automatic, trouble-free operation with minimum power cost and maintenance.

Without obligation, experienced Byrne engineers will gladly consult and assist you on any door problem. For further details see Sweets' Catalog File 14/23.

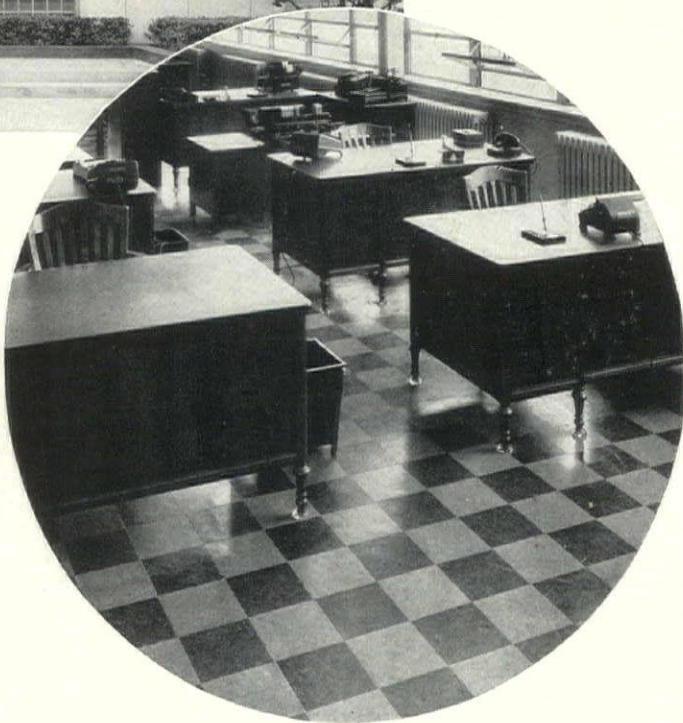
BYRNE doors

i n c o r p o r a t e d

1150 Griswold St.

Detroit, Michigan

15% OF TOTAL BUILDING COST IS A REASONABLE ALLOWANCE FOR HANGAR DOOR



Another

Leading Industrial Concern selects TILE-TEX for Office Flooring

This time, it's Lady Esther, Inc., a client of Architect Albert Kahn. For years, large manufacturing corporations have bought maximum value at minimum cost in Tile-Tex—the ideal factory office flooring.

For real rugged wearability, plus built-in beauty, no other similar type of flooring compares with Tile-Tex—made by a concern with more years of experience than any other in the asphalt tile field. Tile-Tex floors mean low first cost, durable beauty, and inexpensive maintenance.

Join the host of large American corporations who have been using Tile-Tex floors for office areas. These include General Motors Corpora-

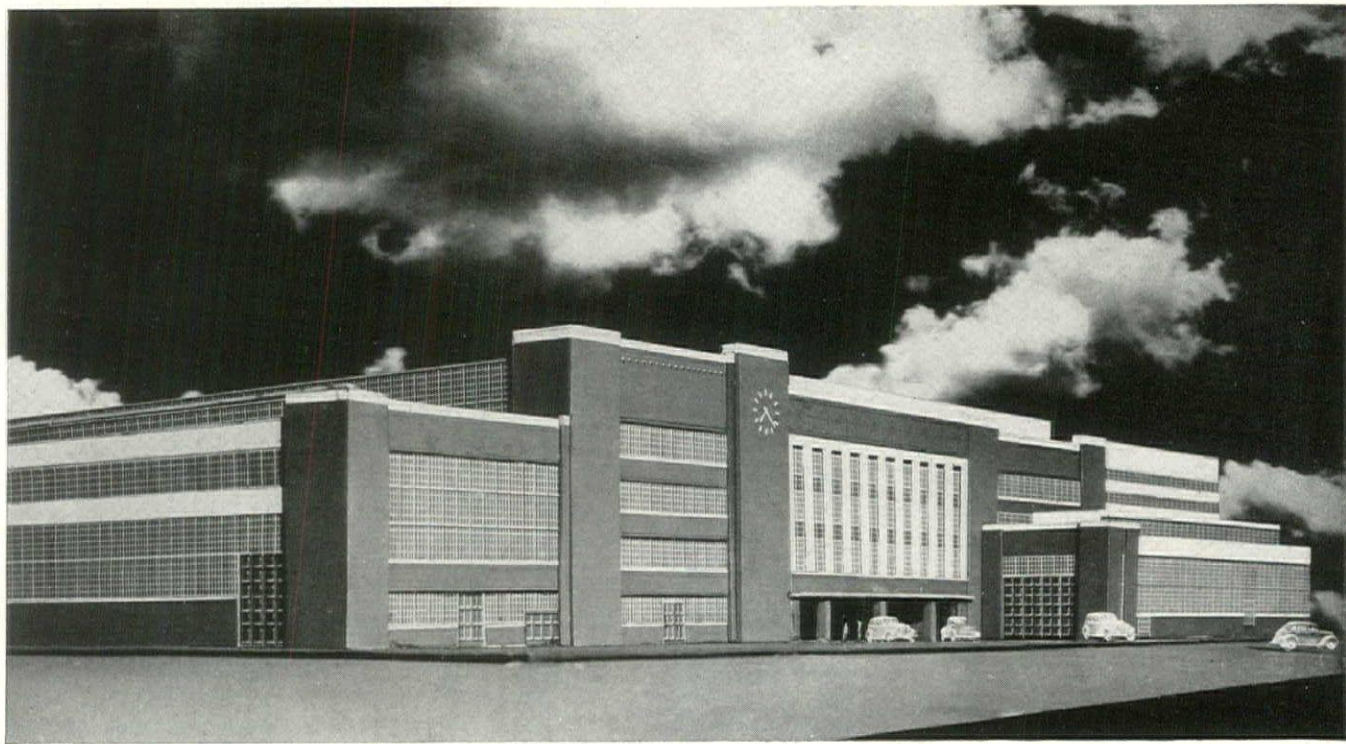
tion, American Can Company, Ford Motor Company, McKesson & Robbins, Inc., Zenith Radio Corporation, American Brake Shoe & Foundry Company, Carnegie Steel Company, Warner Bros., Inc., and many others.

Tile-Tex is sold and installed by experienced and competent approved contractors located throughout the United States. Write today for "Enduring Beauty in Floors by Tile-Tex"—which gives you the complete Tile-Tex story.

The TILE-TEX Company

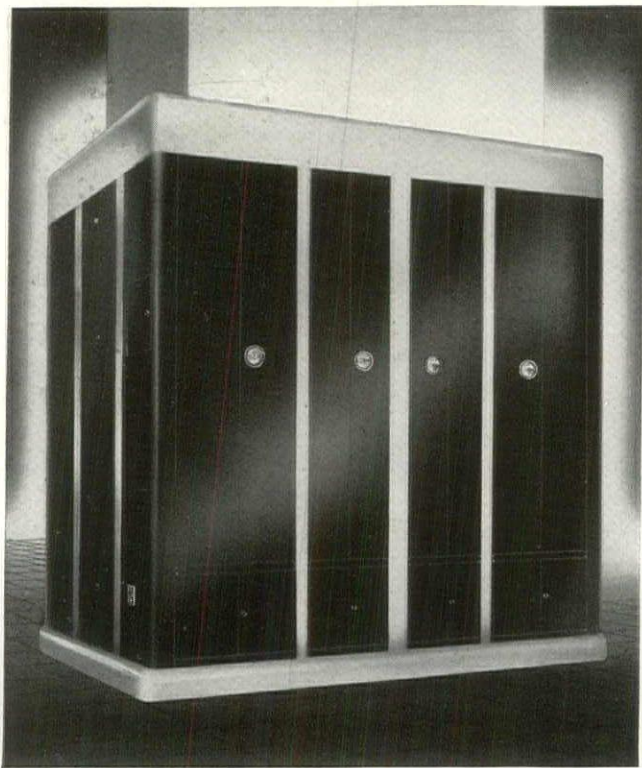
Chicago Heights, Illinois

• 101 Park Ave., New York City

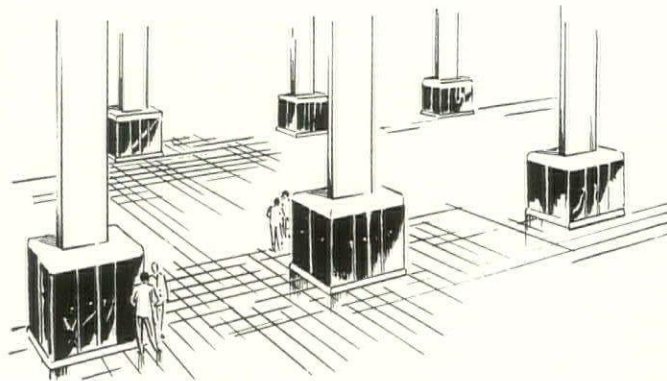


ALBERT KAHN, INC., ARCHITECTS AND ENGINEERS

THE LARGEST PRESS SHOP IN THE WORLD...

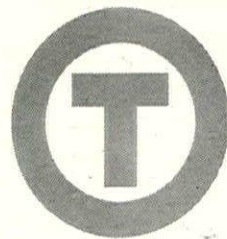


Column centralized electric distribution
for light and power offer BEAUTY,
ECONOMY and SAFETY



USES THE MOST MODERN ELECTRICAL PANELBOARD EQUIPMENT

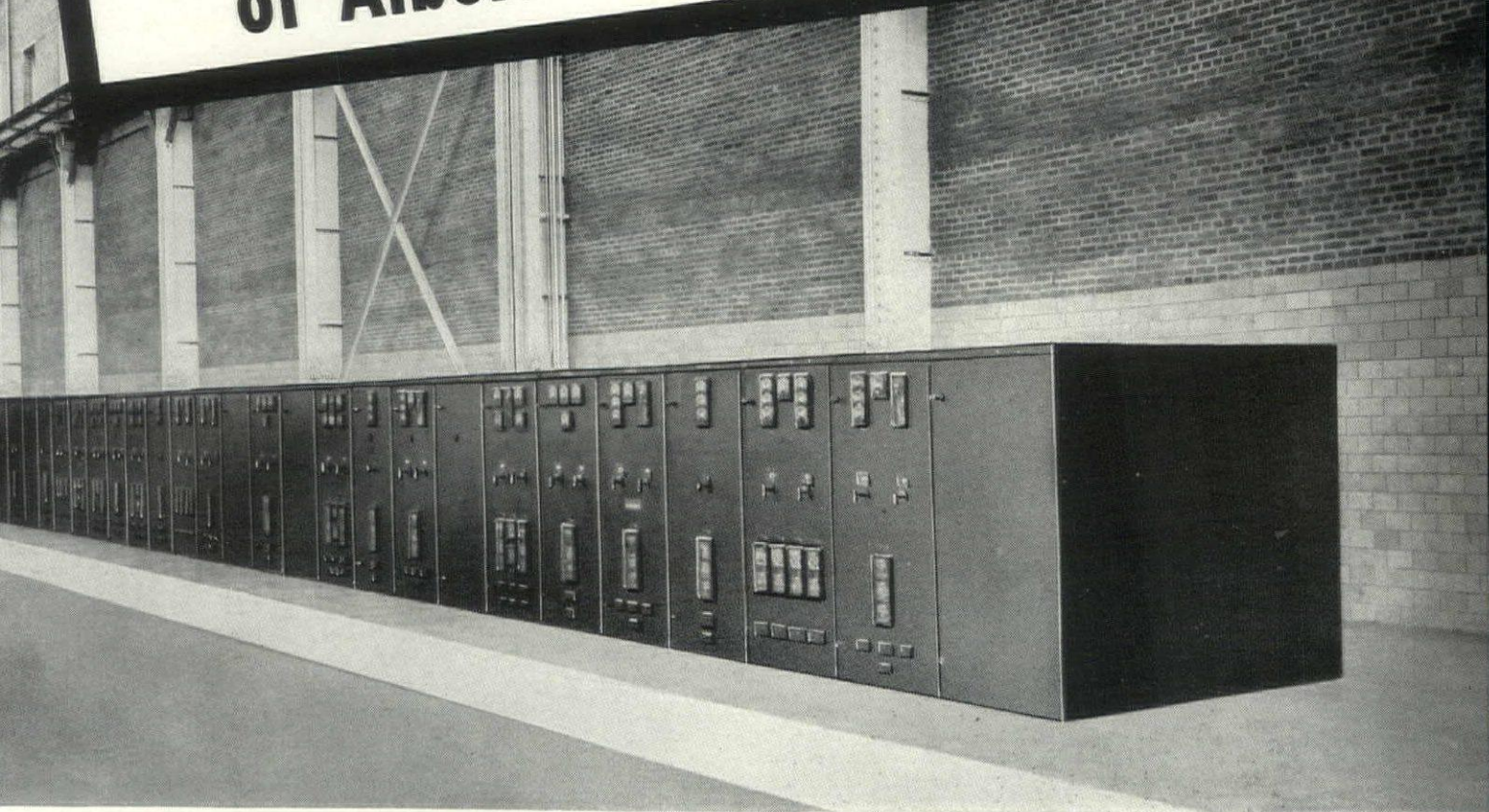
THE TRUMBULL ELECTRIC
PLAINVILLE, CONNECTICUT



MFG. CO.
LUDLOW, KENTUCKY

Switchgear

That's in Keeping with the Achievements of Albert Kahn, Inc.



N the buildings that have made Albert Kahn one of the greatest names in modern industrial architecture, you will find thoroughly modern switchgear. Designed with steel enclosures for safety, and streamlined in appearance by the use of semiflush instruments, the switchgear is in keeping with the high character of Kahn's work as a whole. More important, it affords the degree of reliability required in these outstanding plants. Typical of the modern General Electric switchgear now serving the clients of Albert Kahn is the

installation shown above, one of several in the Corrigan-McKinney plant of Republic Steel, at Cleveland. Ford's great Rouge plant is another Albert Kahn project where production schedules are safeguarded by modern G-E switchgear. In every case the client has also saved installation costs through a factory-built product that is shipped completely assembled.

Whether it's a new building or a modernization job, modern industrial-plant design demands modern switchgear. Specify General Electric.

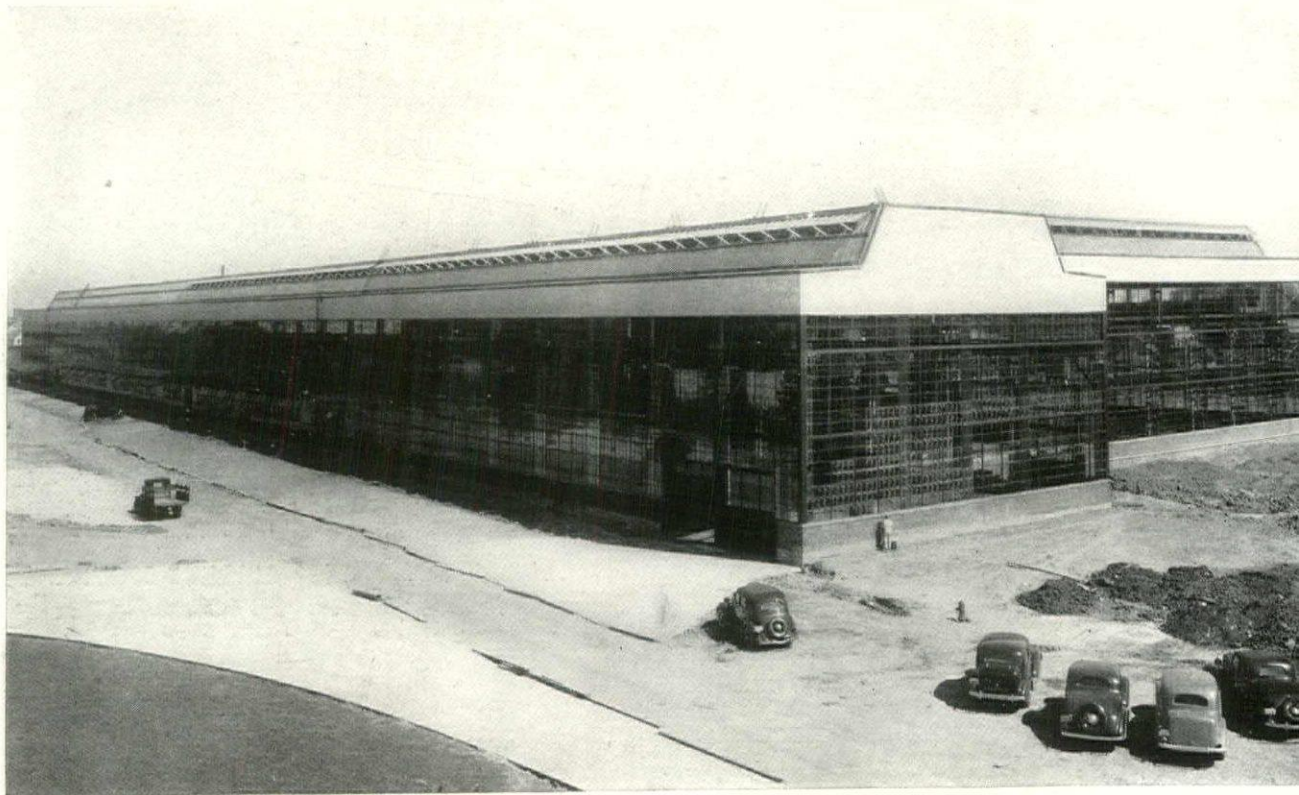
General Electric, Schenectady, N. Y.

GENERAL ELECTRIC

880-34

ALBERT KAHN...

—Designer of Prize-Winning Industrial Buildings



The press shop, DeSoto Plant, Chrysler Corporation, Detroit, Michigan, designed by Albert Kahn, and winner of a national award. Floored with Republic High Grade Block Flooring.



Republic Wood Block Floor, Chevrolet Division, General Motors, Tonawanda, N.Y.

For a number of years Republic Creosoted Wood Block Flooring has been supplied for many projects designed by Albert Kahn.

These include buildings for: American Blower Corporation; Burroughs Adding Machine Company; Chrysler Corporation; Ford Motor Company; General Motors Corporation and subsidiaries; General Motors Truck and Coach; Michigan Stamping Company; Murray Company of America; Republic Steel Corporation.



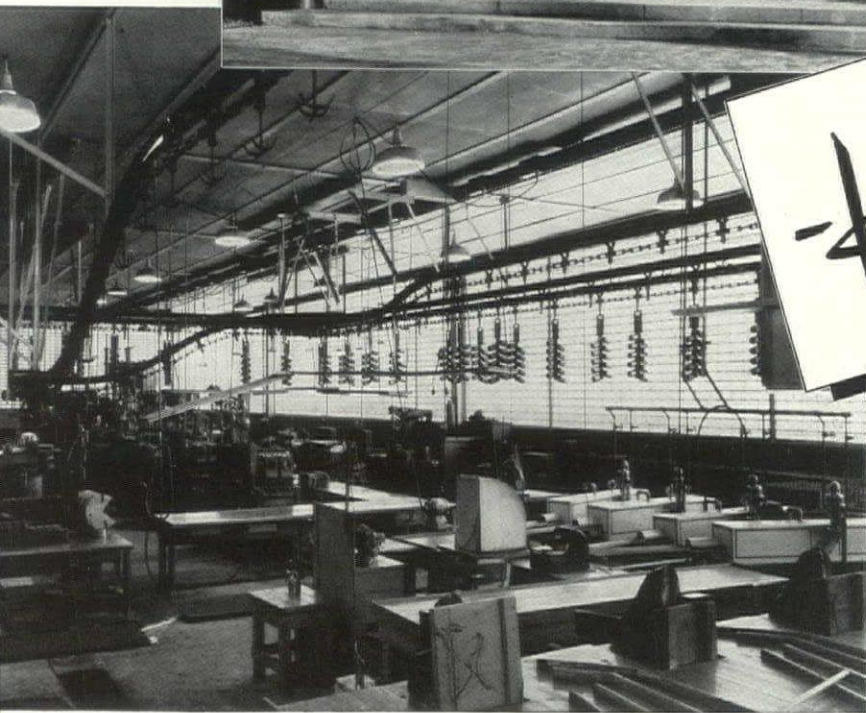
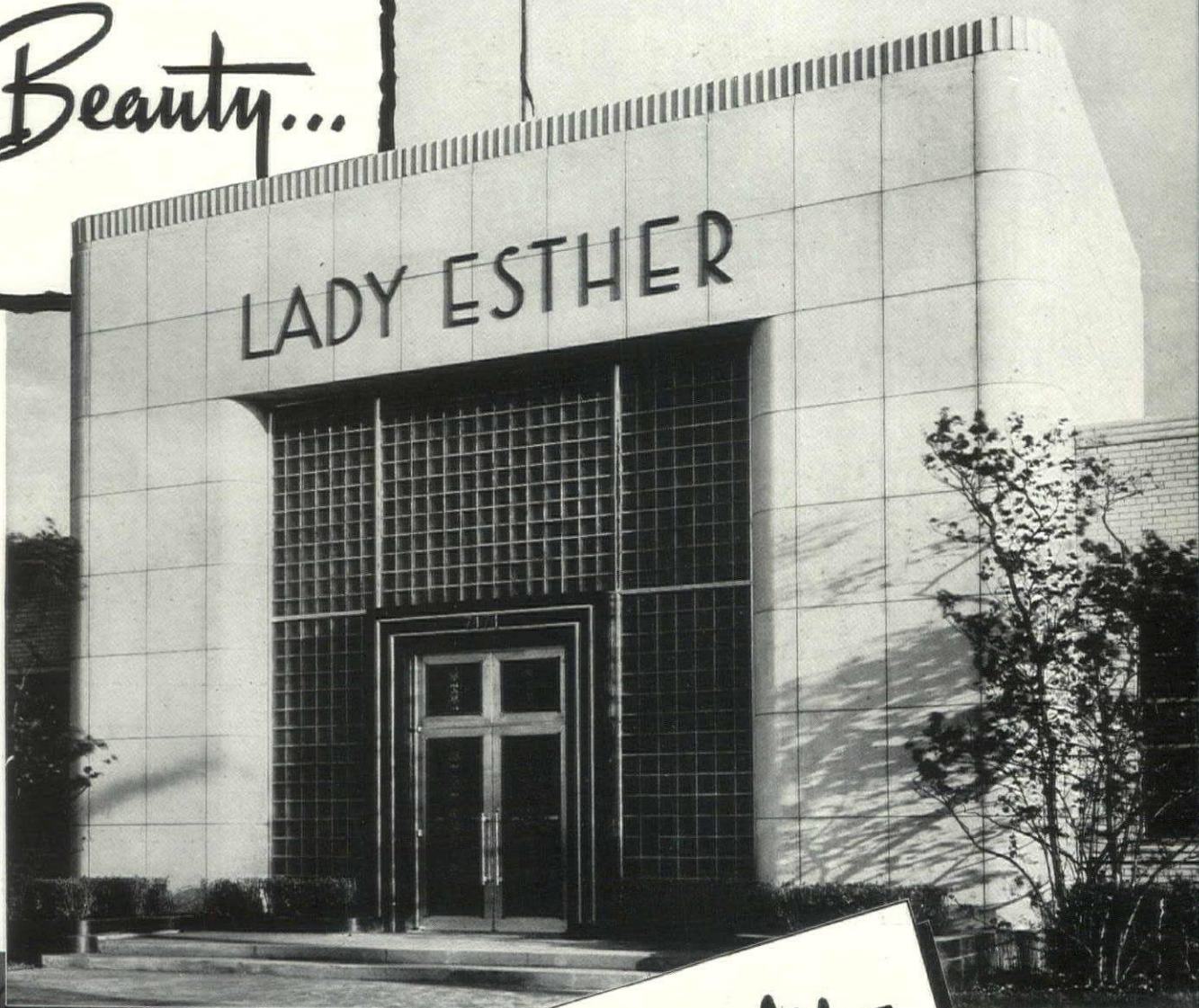
REPUBLIC CREOSOTING COMPANY



EXECUTIVE OFFICES, INDIANAPOLIS, INDIANA
SALES OFFICES IN PRINCIPAL CITIES

-for Beauty...

When beauty was required
part merchandising
to the new Lady Esther
powder plant at Chicago,
Owens-Illinois Insulux
Block was specified.
Albert Kahn, Inc., Architects.
Many industries, Insulux
desires an appearance of
cleanliness and beauty which
ultimately reflected in
greater goodwill and in-
creasing sales.



-for Utility

INDUSTRY TURNS TO LIGHT THE MODERN WAY

● Industry has found in Insulux a material that solves many of the most baffling architectural problems, both in new construction and modernization. Not only does it have excellent insulating efficiency approximating a 12-inch brick wall, assuring temperature control, but also gives more complete diffusion of light, providing better working conditions. Even more, it defies weather, retards heat flow, requires no painting, resists fire, is impervious to grease and is easily cleaned. Any bricklayer can lay it up. Let us send you details on its many successful industrial applications. Just write Owens-Illinois Glass Company, FIRST IN GLASS, Industrial and Structural Products Division, Toledo, Ohio.

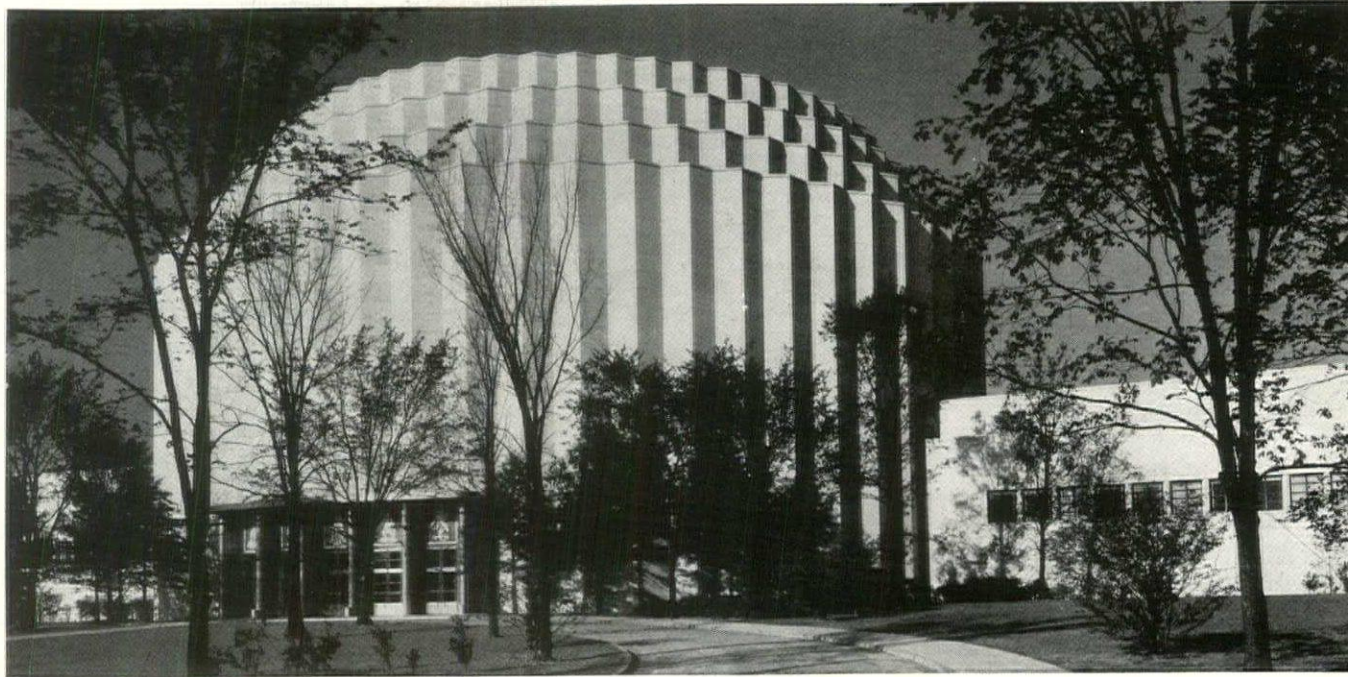
● The precision of automobile pistons and connecting rods depends upon perfect temperature control. Wrist-pin holes must fit to 2/10,000th of an inch, 1/20th the thickness of a human hair. In this new temperature control chamber of the Plymouth Division, Chrysler Corporation, Insulux was specified. Albert Kahn, Inc., Architects.

OWENS-ILLINOIS

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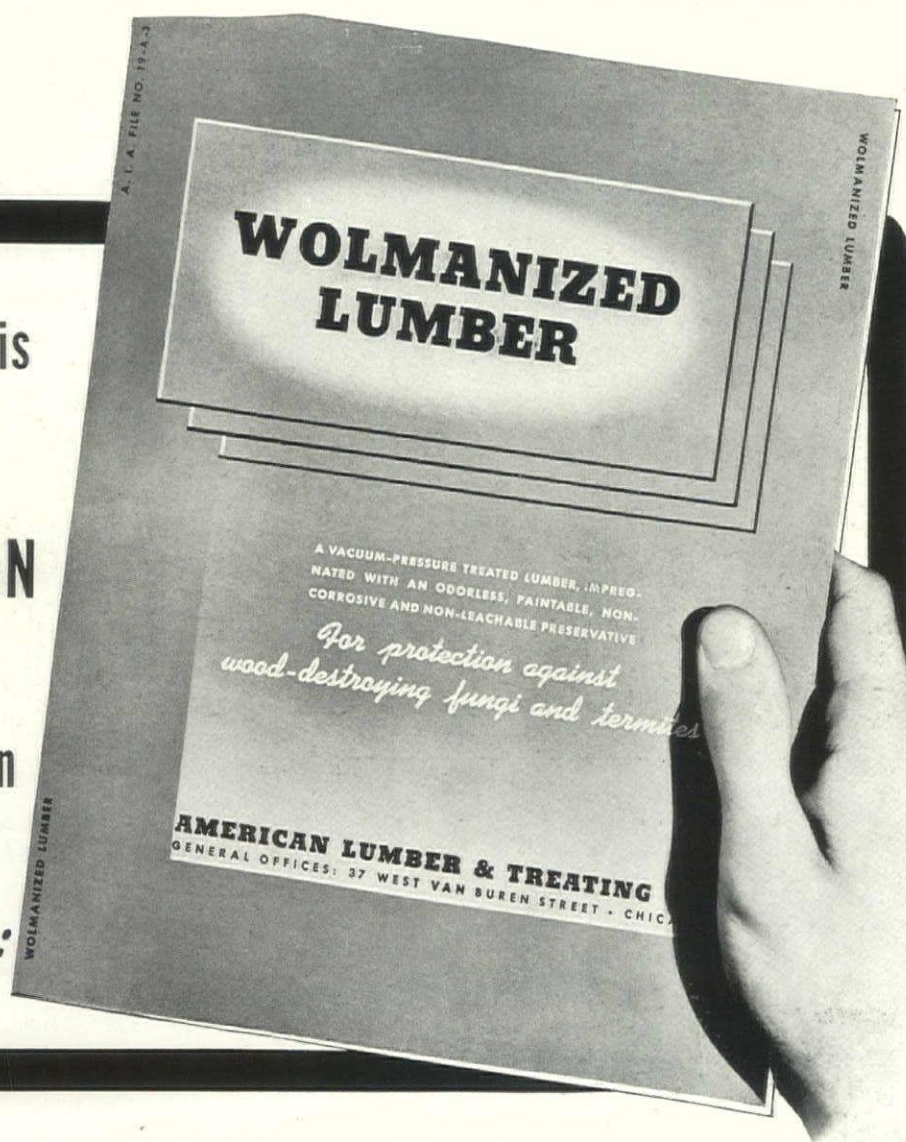
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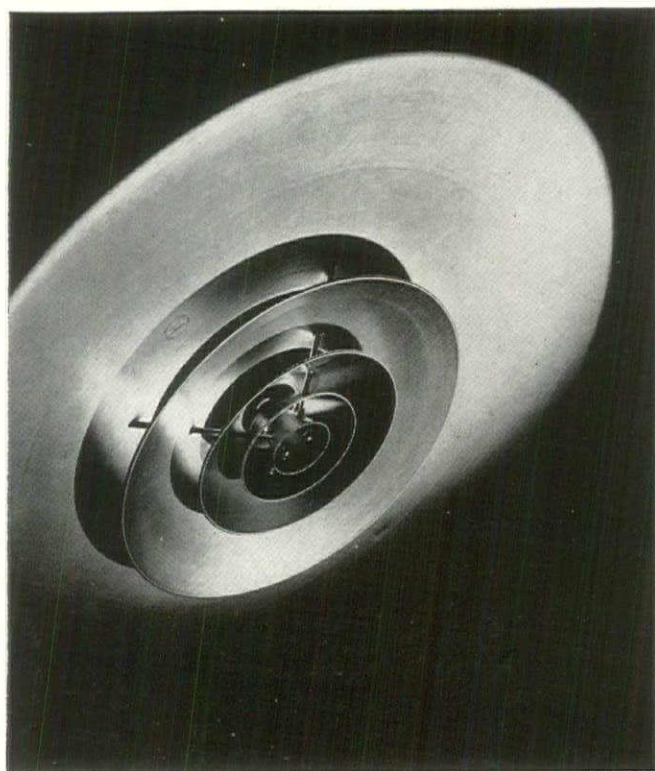
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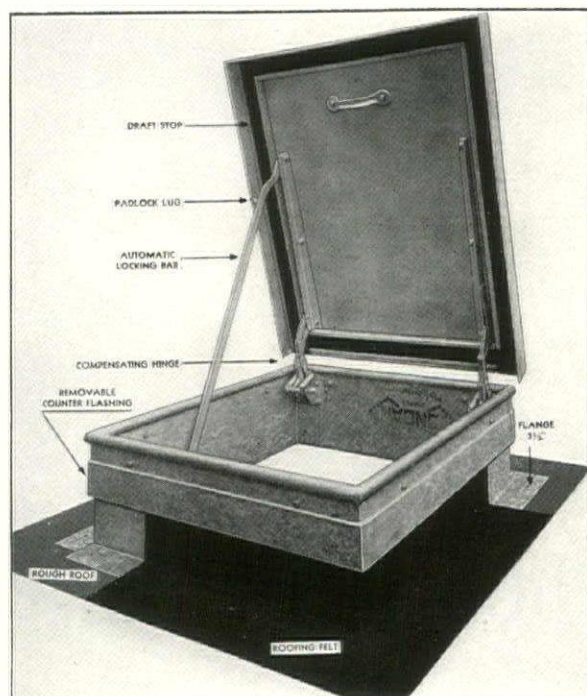
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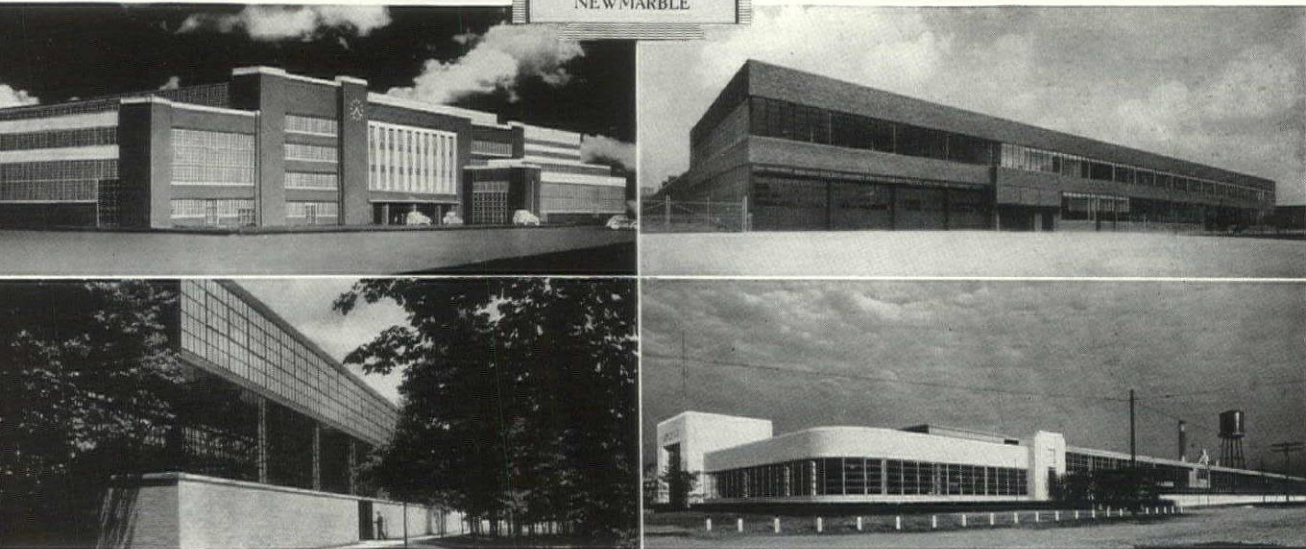
(Bottom) Diesel Engine Division of General Motors, Detroit

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(Bottom) Lady Esther Factory, Chicago



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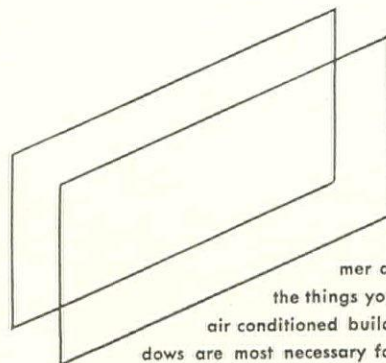
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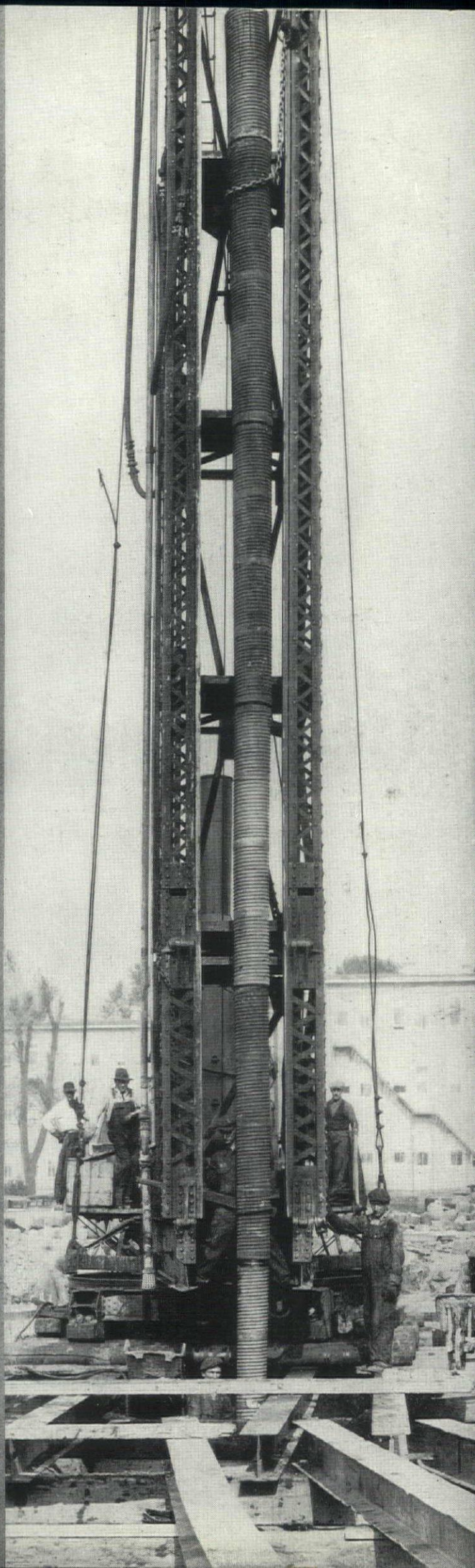
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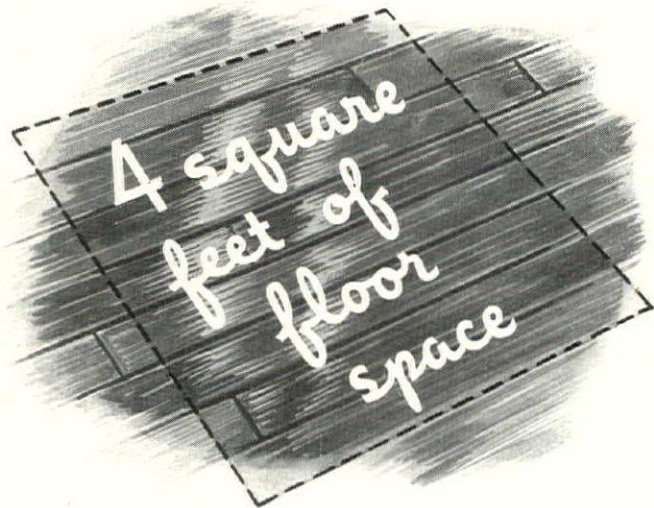
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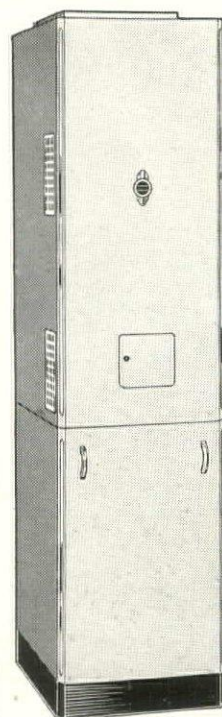
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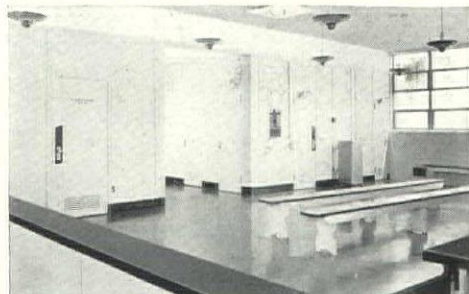
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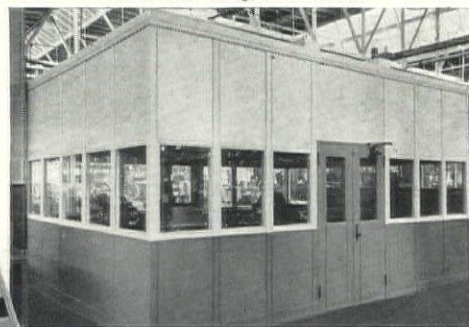
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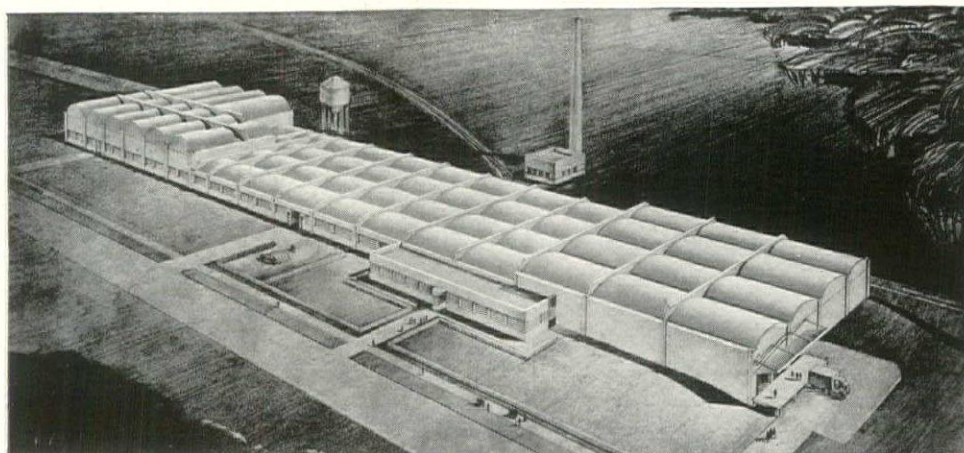
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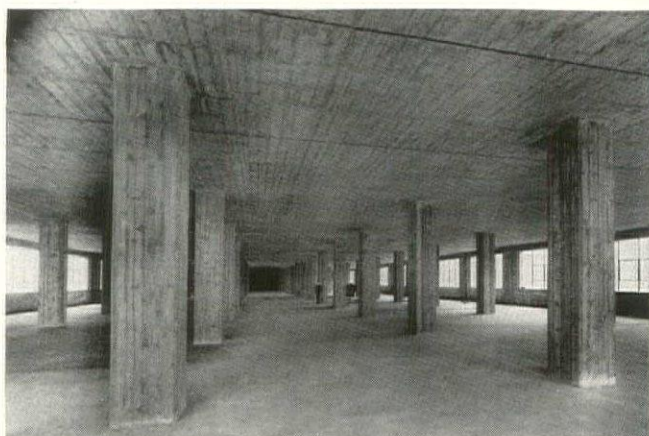


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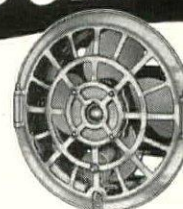
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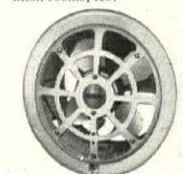
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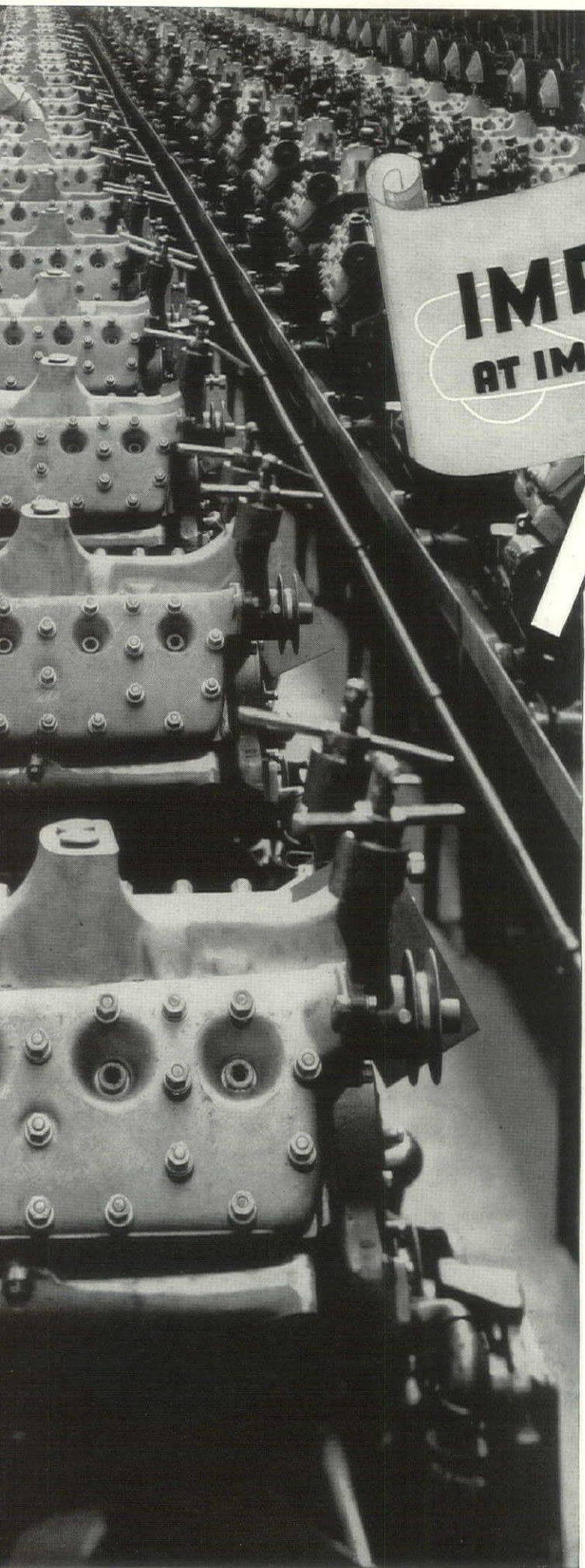
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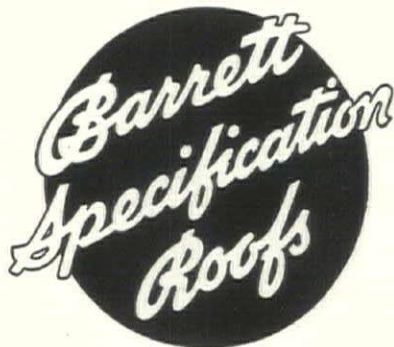
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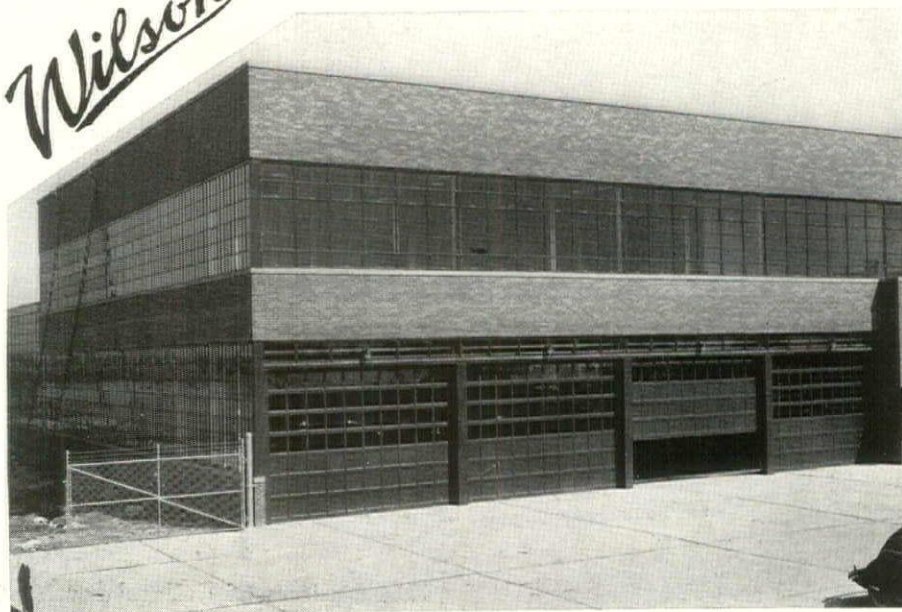
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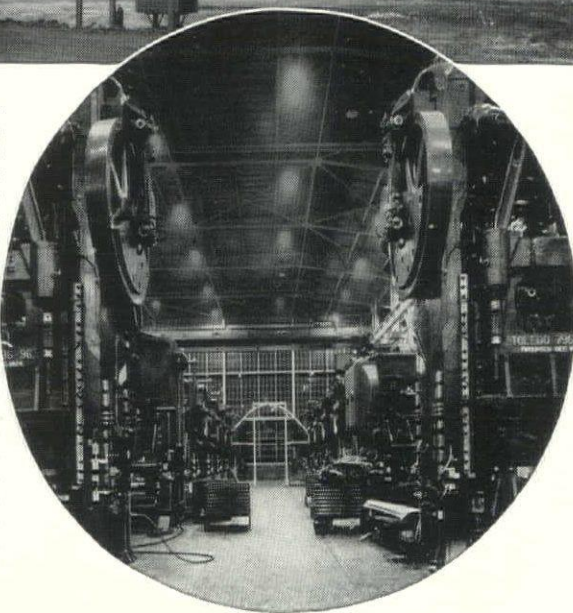
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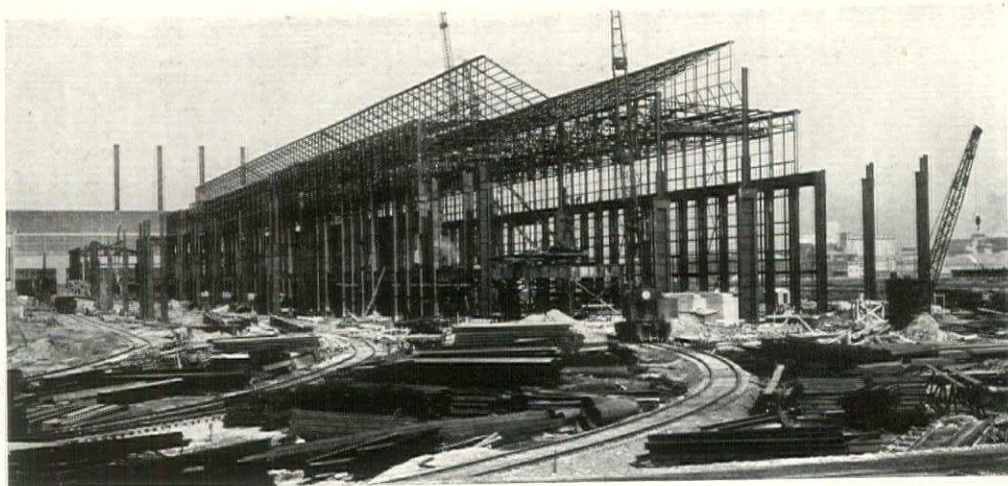
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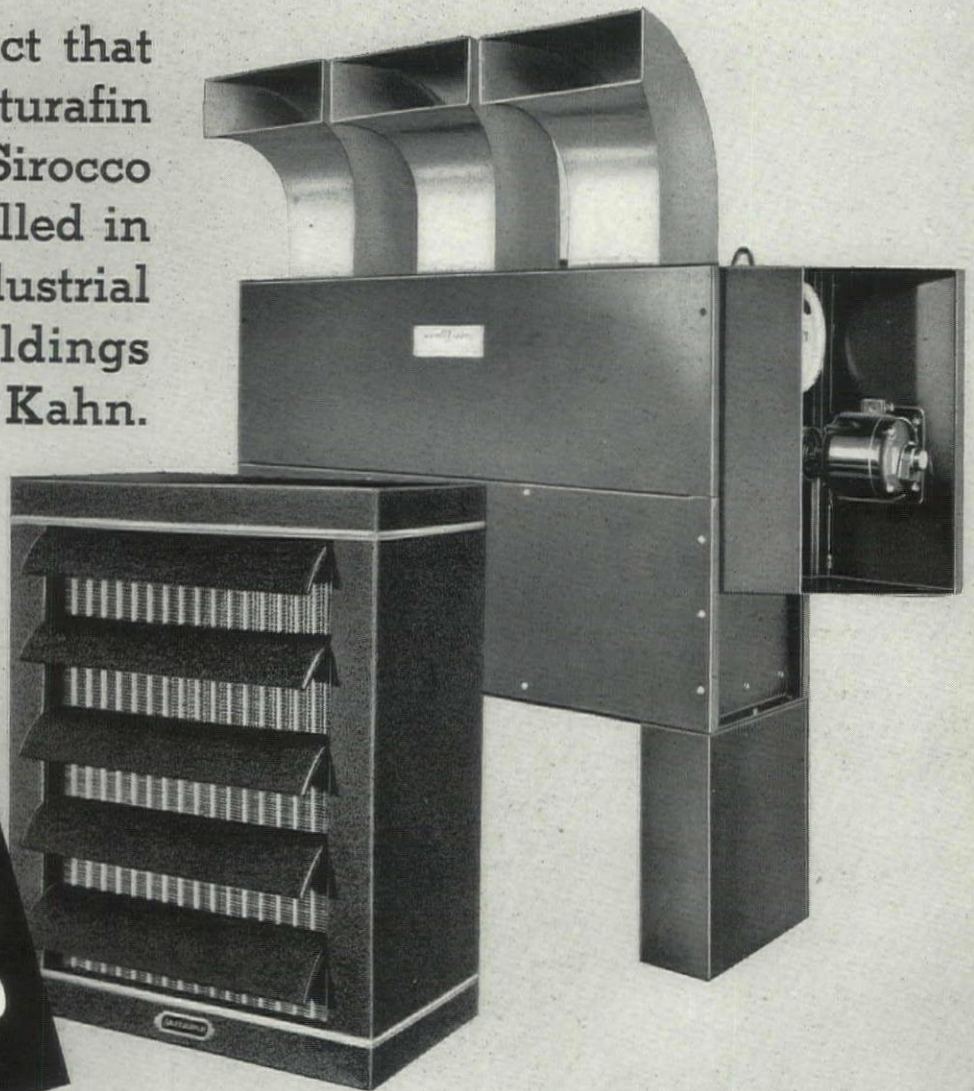
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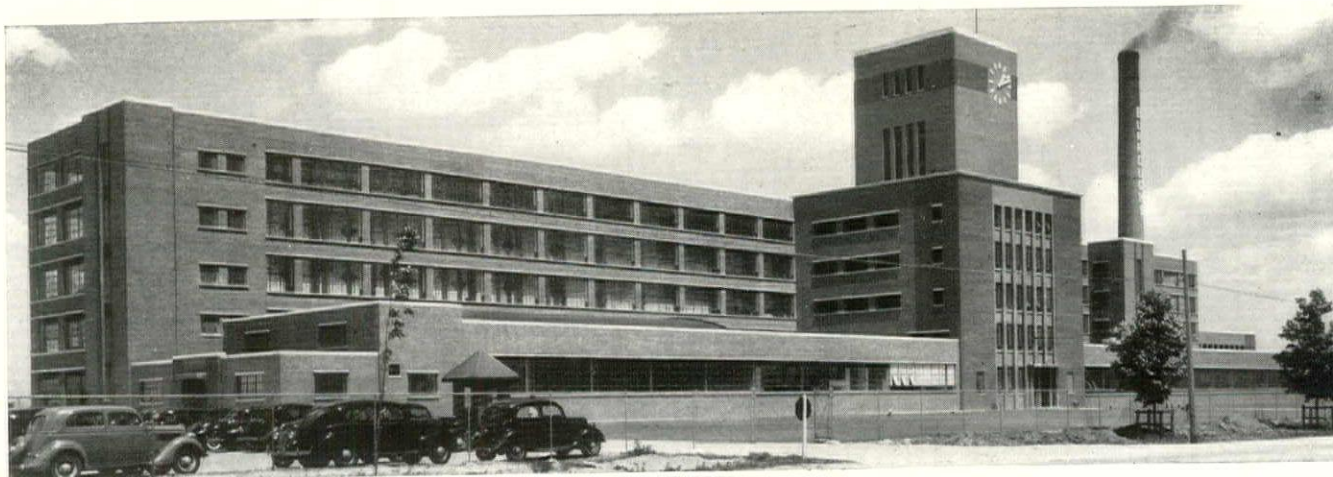
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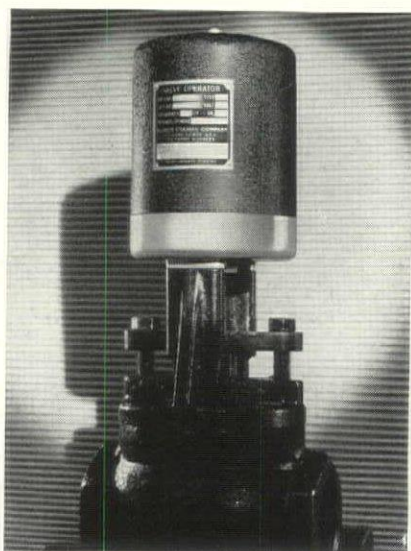
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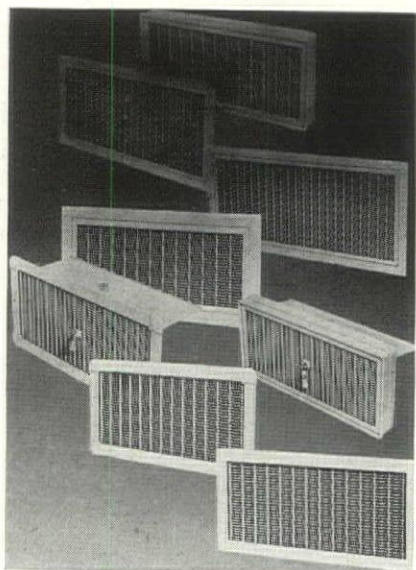




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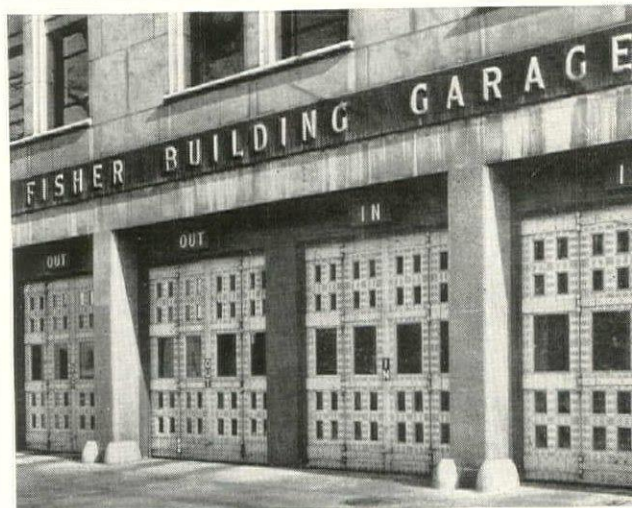
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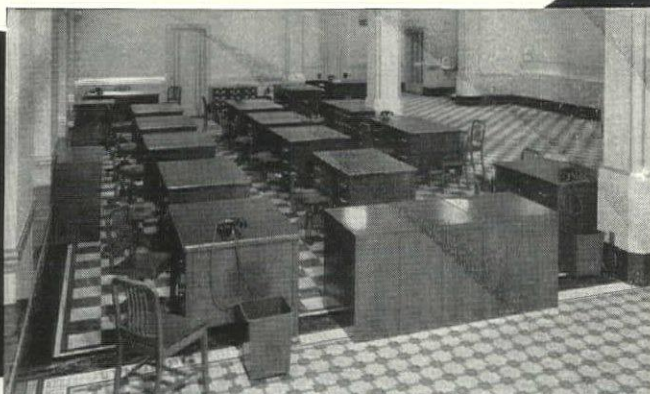
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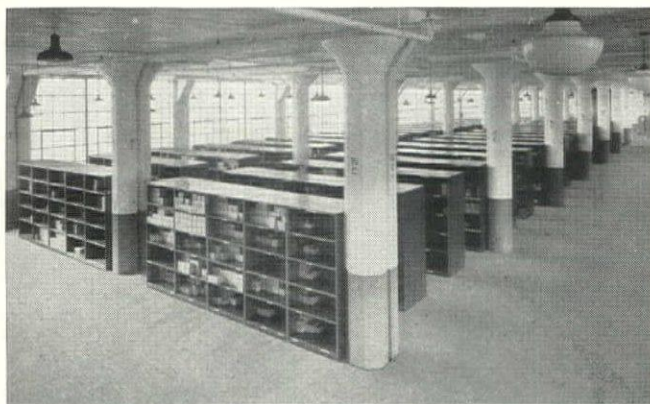


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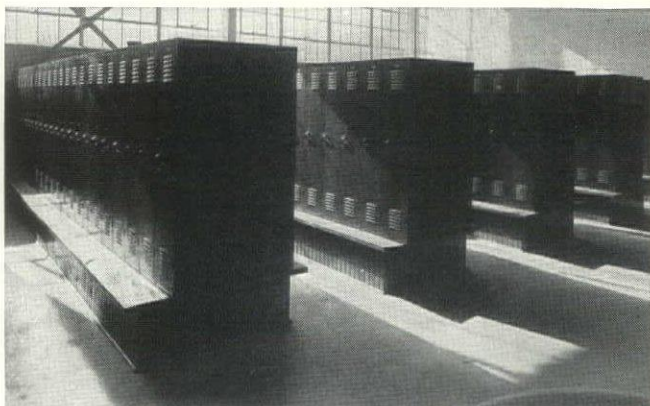
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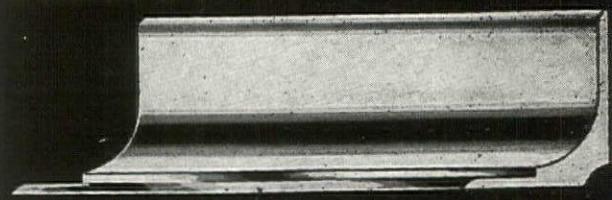
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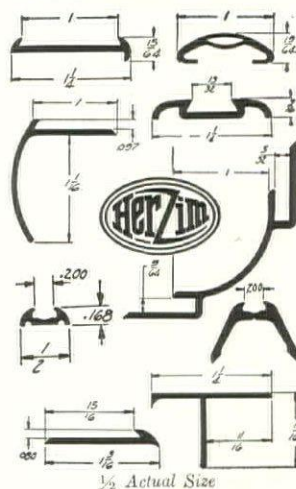
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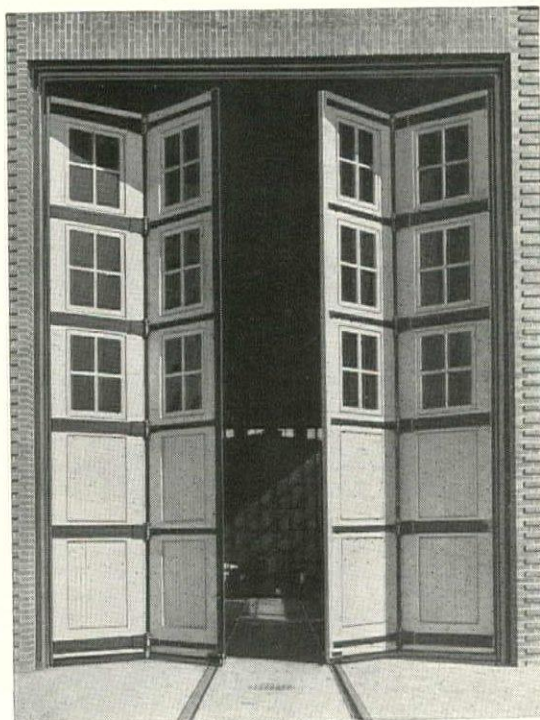
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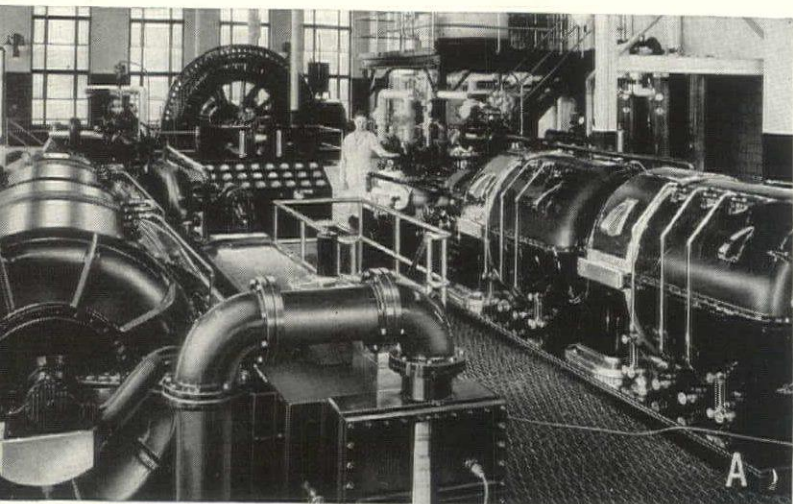
CENTRIFUGAL WATER-VAPOR REFRIGERATION

AT

FORD ENGINEERING LABORATORY

(DEARBORN, MICHIGAN)

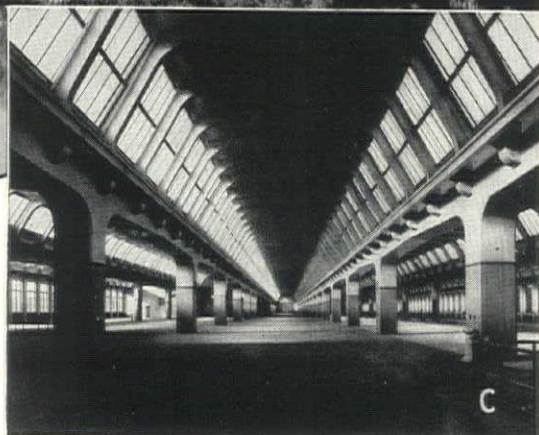
Albert Kahn, Inc.
Architects and Engineers



A. Two I-R centrifugal water-vapor refrigerating units in the Ford Laboratory.

B. Exterior of Laboratory. In the foreground is seen one of the ponds which supplies condensing water for the refrigeration plant.

C. Interior of Laboratory showing architectural design of building.



The two 320-ton tandem, centrifugal water-vapor refrigeration units in the Ford Engineering Laboratory, are typical of many high-grade installations made by Ingersoll-Rand in office buildings, banks, department stores, etc., both here and abroad. Placed in service in 1935, these machines have given uninterrupted service ever since.

They supply chilled water for air-conditioning the entire building. The chilled water is circulated through closed coils in four central conditioning units. Conditioned air is distributed by concealed ducts and hollow columns.

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- Absence of expensive or noxious chemicals.
- Economy of operation and maintenance.
- Ability of units to continue to operate successfully even when condensing water from adjacent ponds rises to high temperatures (90° and above).
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Centrifugal Water-Vapor Refrigeration and the Steam Jet Type are described in bulletins 9144 and 9143 respectively.

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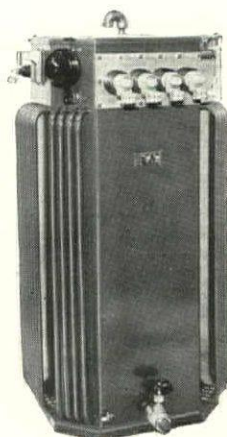
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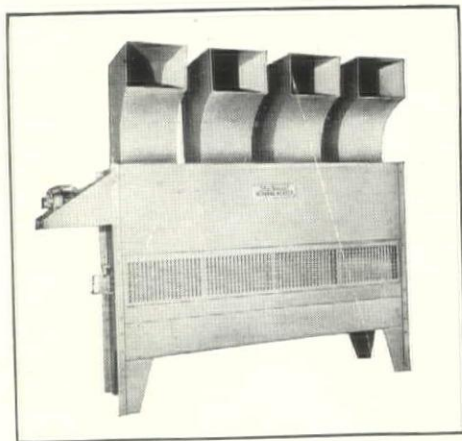
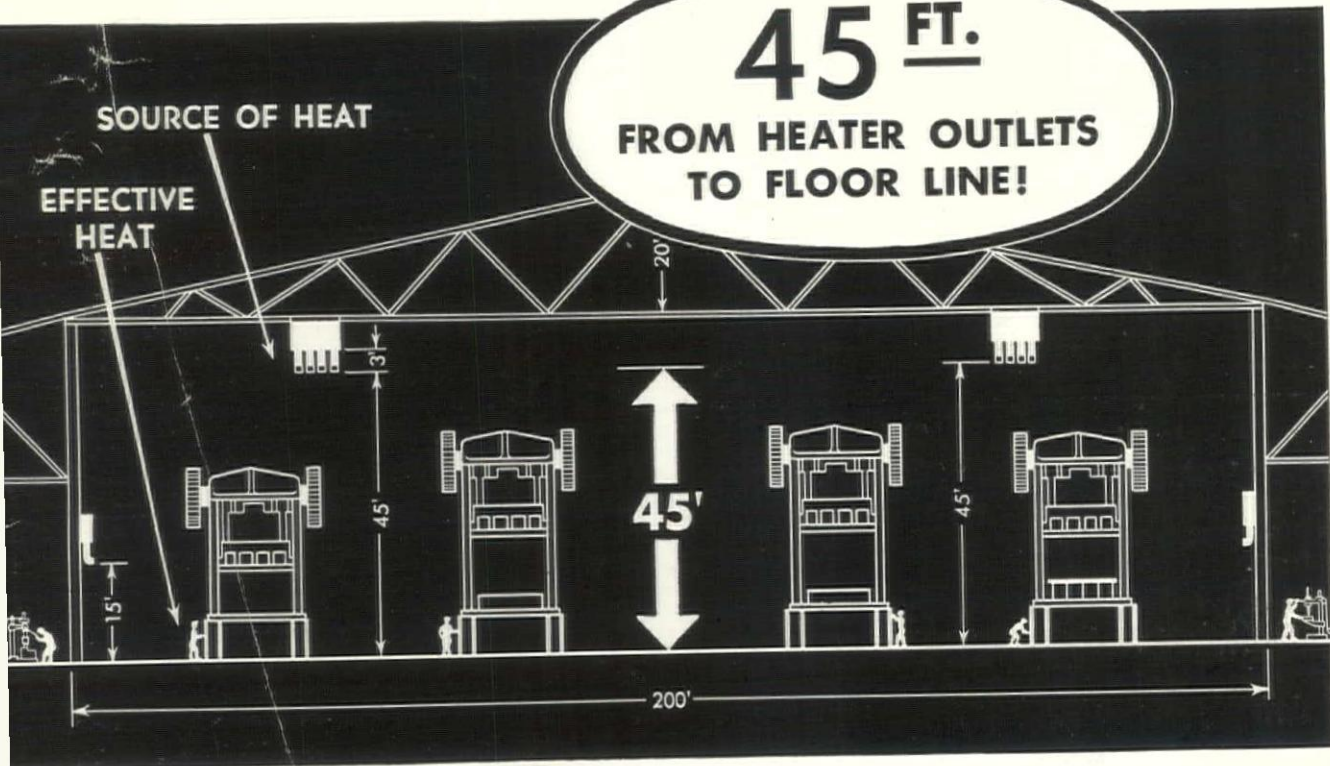
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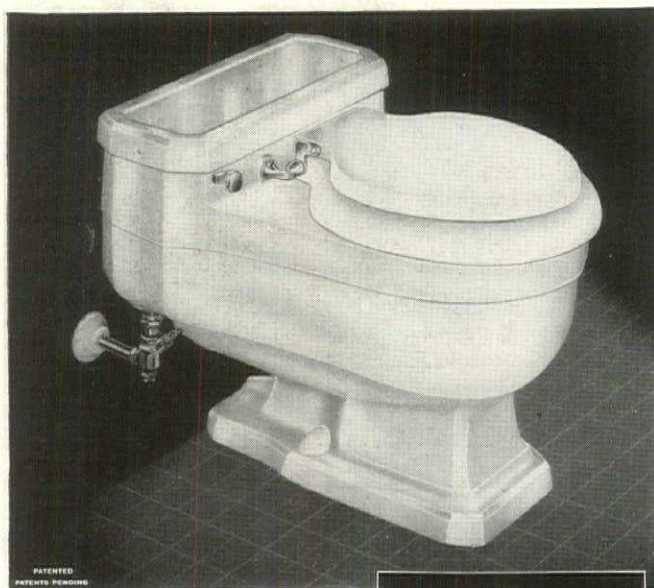


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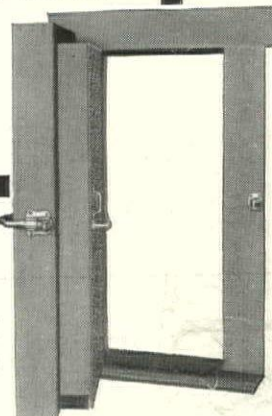
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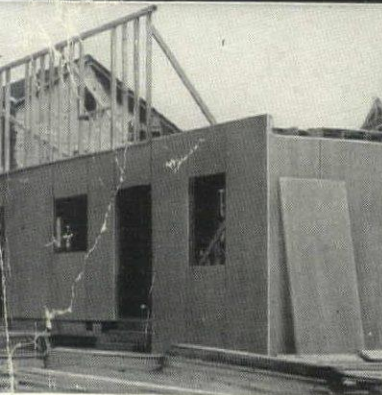
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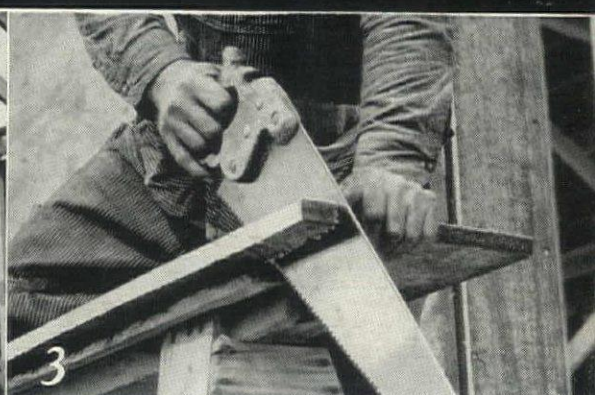
OUTSIDE—WEATHERWOOD INSULATING SHEATHING



1. Braces, protects against weather during construction and throughout life of house.

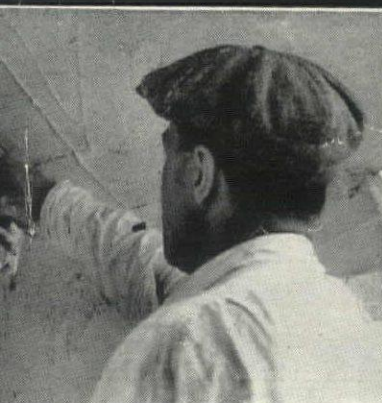


2. Applied quickly—every joint goes over stud, sill or header, thus reducing wind infiltration.

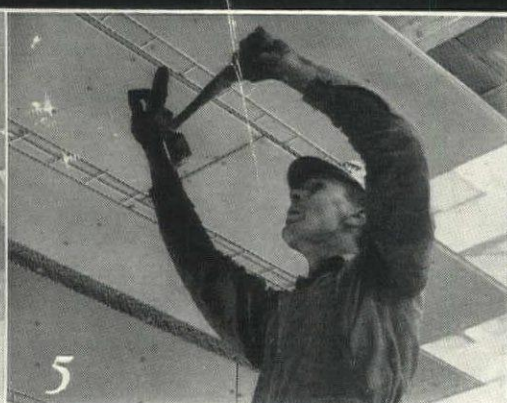


3. Cuts readily—an easy material on saws and tools.

INSIDE—WEATHERWOOD REINFORCED INSULATING LATH



4. Gives both insulation and plaster base in one product. Note joint reinforcement.



5. Sheets span 3 studs—yet one man handles easily.



6. Exclusive USG reinforcing to minimize plaster cracks.

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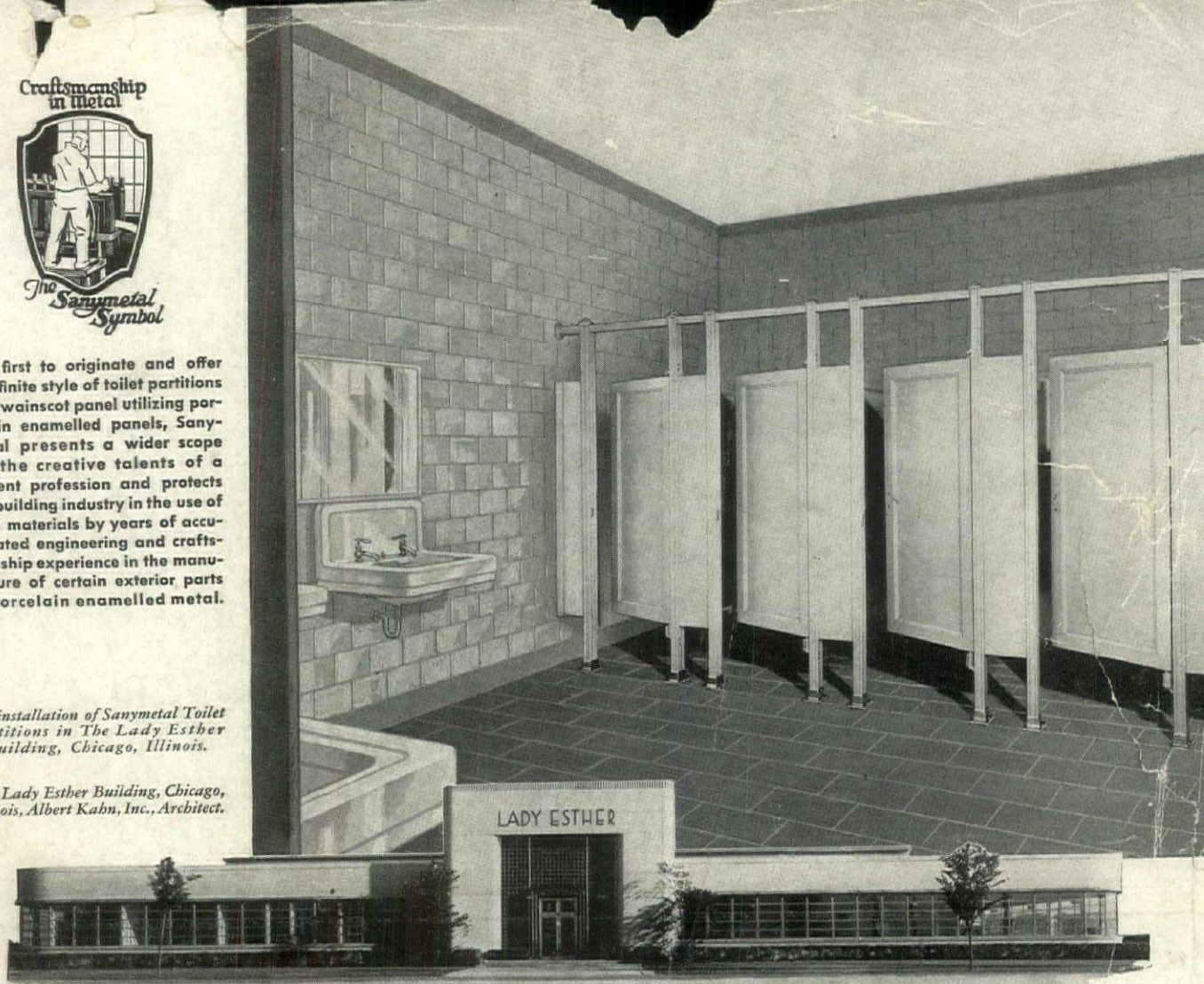
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The Lady Esther Building, Chicago, Illinois, Albert Kahn, Inc., Architect.



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